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The Nation's School Building Needs

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FOREWORD

EDUCATION stands at the threshold of a period of reconstruction. School support this year is expected to be at least equal to that of last year. The low point apparently has been reached; the time to move forward is at hand. It will not suffice to rebuild what has been destroyed—to regain what has been lost. Fundamental changes must be introduced so that the school may have a vital part in the social and economic readjustments now in progress.

The large problem of educational reconstruction has many phases; for example, restoring the compensation of teachers to a professional basis, improving and vitalizing the curriculum, and providing adequate teaching supplies and textbooks. Another problem of major importance, and the one with which this bulletin is concerned, is the provision of suitable schoolhousing facilities. School building programs have shared heavily in the enforced retrenchment of the past few years. Construction has been halted and only the most necessary repairs have been made. The resumption of school building activities is of interest both from the standpoint of educational recovery and from that of general economic recovery. The best teaching is impossible in a crowded or otherwise unsatisfactory school building. Labor and materials used in school building construction have a direct influence on economic conditions, varying in importance with the amount of building done.

In order that sound policies may be adopted with reference to school building construction, the best information available is needed with respect to existing facilities. Has construction kept pace with actual needs? To what extent are present facilities inadequate or unsuitable for further use? By and large, is there an imperative need for additional school buildings, or can building operations wait for a more favorable period? These and similar questions are being raised by those occupying positions of responsibility, but unfortunately definite facts needed in answering them are often lacking.

This issue of the *Research Bulletin* brings together important information on the present status of school buildings. It gives a general overview of the schoolhousing situation, evaluates recent trends in construction, and summarizes the data available with respect to school building needs. It should be of interest to everyone concerned with the course of educational recovery. It should be especially helpful to the school administrators and public officials responsible for the policies that will be pursued.

WILLARD E. GIVENS, *Secretary,*
National Education Association.

Introduction

A school consists not of brick and mortar, but of the purposeful activity of boys and girls directed by capable and efficient teachers. Nevertheless, the quality of a school building exerts an important influence over the type of work that goes on within it. Learning proceeds in a normal manner only when children are housed in buildings that are safe, clean, and comfortable. Desirable attitudes and character traits are developed with difficulty unless the pupils' environment is wholesome. In short, suitable school buildings are indispensable to an efficient system of public education.

This *Research Bulletin* gives a general overview of the school building situation at the present time. It presents data needed in the critical appraisal of education now in progress. It points out the unusual opportunity that school building construction offers to stimulate economic recovery thru permanent and socially desirable public works projects.

Scope and Plan of Organization

The bulletin is organized according to the specific objectives on which it is focused: (1) an examination of recent trends in school building construction; (2) a review of the best evidence available with reference to school building needs; and (3) an evaluation of the oft-repeated statement that school building construction outstripped actual needs in the decade before the depression. The final section of the bulletin considers briefly the current opportunities and responsibilities of the federal government with respect to the nation's school-housing program.

The bulletin is limited in scope to a discussion of the topics indicated above. In some instances the treatment is sketchy and incomplete, for it has not been possible to obtain complete and detailed information about the nation's school building needs. The bulletin is not a national survey, but merely a review of the general housing situation.[1]

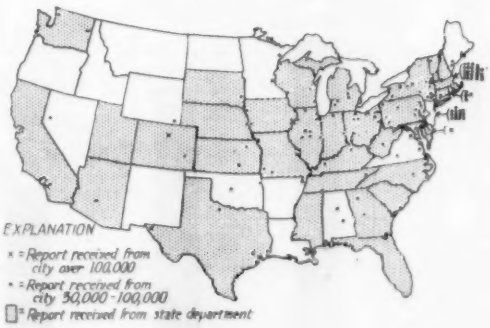
Sources of Information

Except for Part II of the bulletin, which deals with the need for additional school buildings, the basic facts have been assembled from published sources. These are indicated in footnote references.

The material in Part II is based primarily on questionnaires submitted, during the spring and summer of 1934, to state departments of public instruction and to superintendents of schools in cities over 30,000 in population.[2] These inquiry forms are reproduced on page 33. Replies were received from 31 states and the District of Columbia, from 49 cities over 100,000 in population, and from 114 cities 30,000 to 100,000 in population.[2] These states and cities are shown on the map below. Not all state departments and city school systems could supply data on every question asked. The number reporting on the various items is indicated in connection with the tables presented later.

Information with respect to the school building needs of a number of states has been obtained from unpublished reports of recent building surveys. Another valuable source of information has been letters from state school officers in departments of education.

STATES AND CITIES WHICH REPLIED TO THE SCHOOL BUILDING INQUIRY


EXPLANATION
× = Report received from city over 100,000
• = Report received from city 30,000-100,000
= Report received from state department

[1] Further information with respect to school building needs is being assembled by the United States Office of Education. It is expected that a report of that study will be published soon.

[2] In the case of states having no city over 30,000 in population, an inquiry was sent to the superintendent of schools in the largest city in the state. Thus, at least one city in every state was invited to participate.

I. Recent Trends in School Building Construction

Since 1930, the construction of school buildings has been all but abandoned. Figure I shows how sharply capital outlay expenditures have fallen during the depression years, from nearly $371,000,000 in 1930 to approximately $100,000,000 in each year since 1933.

The cessation of building activity has occurred in both urban and rural areas. One of the reports of the United States Office of Education shows that between 1931 and 1934, in 262 city school systems, capital outlays declined 80.1 percent.[1] Another report from that office, based on questionnaire returns received from 1111 county superintendents during the autumn of 1933, cites 1425 building projects in rural areas where the need was urgent but construction was being postponed because of lack of funds.[2]

Figure II shows graphically the trends since 1926 with respect to school enrolments, expenditures for school buildings, and total expenditures for all school purposes. By going back to 1926, the effect of the depression on prevailing trends is revealed. This diagram makes it clear that the decrease in school building construction cannot be explained in terms of a stationary school population—enrolment is increasing steadily. The growth in high-school enrolment especially stands in sharp contrast to the rapid drop in capital outlay. Since this is true, some other explanation for the curtailment of building operations must be sought. Was the building program under way in 1930 too extensive? Have the schoolhousing needs of the nation been met and anticipated so well that building operations quite properly have been suspended? Significant facts relating to these questions are presented in the next two sections of this bulletin.

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[1] Covert, Timon; Foster, Emery M.; and Herlihy, Lester B. *City Schools and the Economic Situation.* Circular No. 124, October, 1933. Washington, D. C.: U. S. Dept. of the Interior, Office of Education, 1933. p. 4. (mimeo.)

[2] Gaumnitz, W. H. *Some Effects of the Economic Situation upon the Rural Schools.* Circular No. 80, February, 1933. Washington, D. C.: U. S. Dept. of the Interior, Office of Education, 1933. 18 p. (mimeo.)

FIGURE I

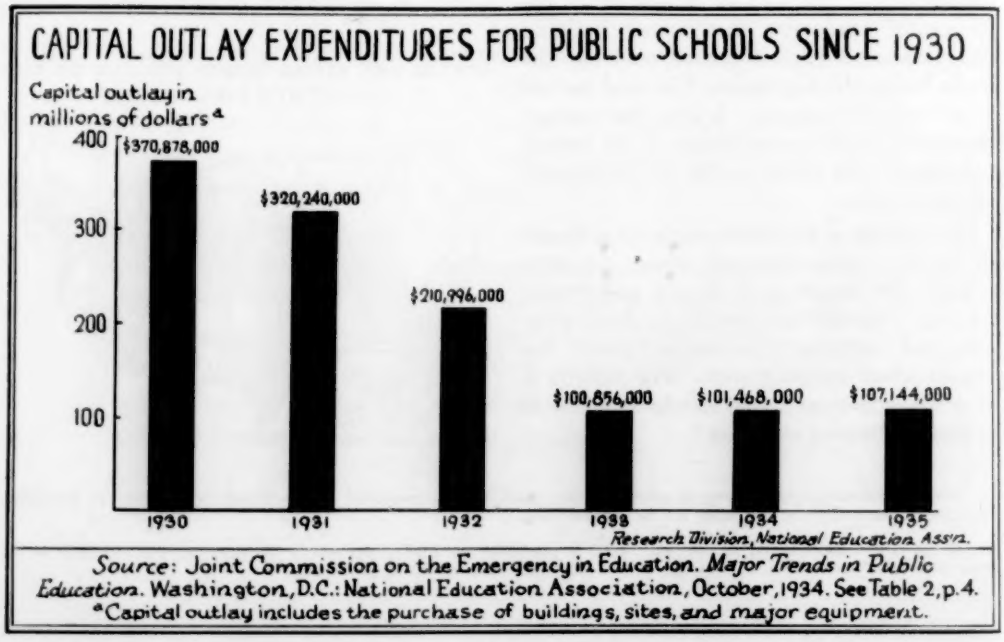
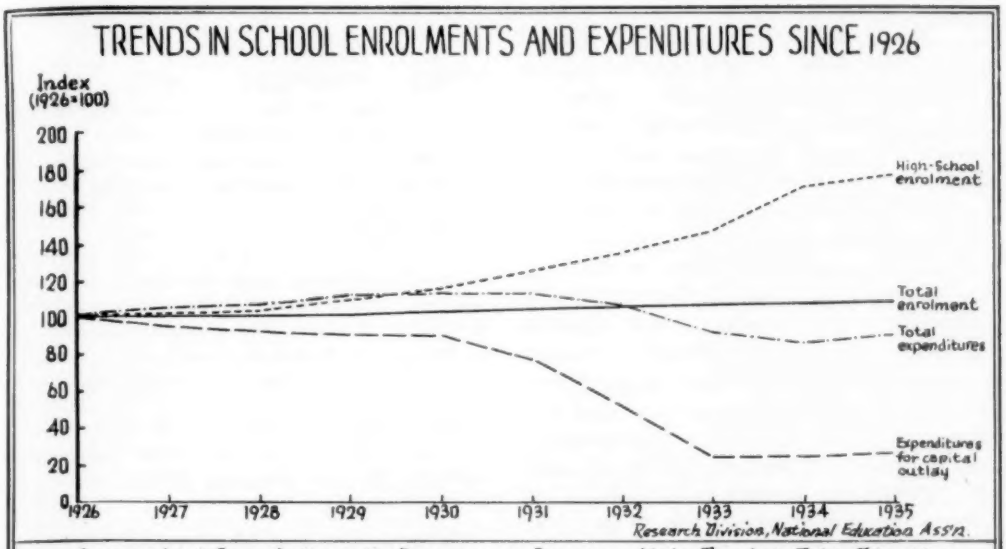


FIGURE II



Source: Joint Commission on the Emergency in Education. *Major Trends in Public Education*. Washington, D.C.: National Education Association, October, 1934. Based on data in Tables 1 and 2, p. 3-4.

THE public school is the positive and definite measure of a community's awareness of parental and civic responsibility and obligation. Let us build for our children school homes that are clean and safe, symbols of our hopes for them and our faith in the future of the community. The investment made in school buildings is returned many fold in human dividends, for the personality of children reflects the refinement with which it is surrounded. The school lifts the level of mankind's ideals thru the wholesome physical environment it provides as well as thru its rich intellectual and spiritual life. Fortunate is the child who can have daily contact with good taste in his school home. Order, quiet, beauty, good equipment, play space, work rooms, gardens, safety, fresh air, abundant light, and cleanliness are as important for the school home as for the parental home. The beauty of the modern school is not achieved by extravagant ornamentation. Careful planning may produce architectural balance, grace and symmetry in outline, harmony of color, strength and dignity of material with an economy that is consistent with the ideals of thrift and simplicity of living which it is the purpose of education to instil.—Joy Elmer Morgan.

II. School Building Needs

Unless schoolhousing facilities were more than adequate in 1930, the sudden halting of building operations during a period of mounting enrolments, noted in Section I, obviously would result in a serious shortage of suitable school buildings. This section explores that possibility; it is devoted to an examination of the needs for additional housing facilities. This investigation, however, assembles only the most obvious and tangible evidences of improper housing conditions. Data are presented with respect to: (1) condemned school buildings still in use; (2) part-time attendance because of inadequate housing facilities; (3) temporary structures of various types used for school purposes; (4) the ages of school buildings now in use; (5) the need for consolidation of small schools; and (6) a state-by-state review of building needs in sixteen states. As explained earlier this information was obtained from state departments of education and from superintendents of schools in cities over 30,000.[1]

The factors mentioned above are by no means the only evidences of improper housing. Other conditions, some of which are difficult to measure objectively and uniformly, must be taken into account if one would determine completely the needs that exist. Some of the school administrators who replied to the questionnaire, pointed out that their answers to the questions asked did not reveal the true need for additional school buildings in their respective cities and states. Excerpts from two of these timely criticisms follow:

A.—I returned to you, after filling it out, the questionnaire on school buildings.

The data that can be compiled from that questionnaire will not give a true picture. In fact they will furnish a wrong impression of the schoolhousing situation. Let me cite some facts concerning our schoolhousing situation here in ———:

1. Number of school buildings which have been condemned ..... None
2. Number of pupils on part time..... None
3. Number of pupils housed in portables None

Yet this is no evidence of a satisfactory housing situation; for consider these additional facts:

1. Number of school buildings that ought to be condemned as hazardous..... 1
2. Number of buildings badly overcrowded.. 1
3. Number of buildings in which basement rooms are used as classrooms..... 1
4. Number of buildings in which artificial light is required in some schoolrooms during whole of school day..... 2

These conditions, which are not unusual in city school systems, will not be revealed by the data obtained from the questionnaire.

B.—We have "filled in the blanks" on the attached report and we feel that in so doing we have given no information that would help anyone in determining our school building needs.

In fact, this district is greatly in need of another small building for its negro population. We could make out with a frame building costing something like $15,000. We have tried to manage in some way for two years to finance this building need, but without success. Tho we have no pupils attending on a "part-time basis" or in "buildings condemned as unsafe or unsanitary," still we have a severe overcrowding in each of our two present negro school buildings. We know of no way that we can now, or soon, provide this needed building.

With no claim to completeness, therefore, the situations described below are presented as evidence of certain undeniable needs for additional school building facilities.

Condemned School Buildings

Number of condemned buildings in use—One objective measure of the need for new school buildings is the number of buildings still in use that have been condemned by duly constituted authorities[2] as unsafe or unsanitary. Incomplete figures with reference to such buildings are presented in Table 1. The situation is shown for 18 states and for 94 cities *in other states;* also, for city school systems considered separately. The latter is based on returns from 163 cities, 69 from the 18 states submitting data plus the 94 mentioned above.

The state reports, covering approximately 41 percent of the nation's school buildings, show that 5045 or 5.0 percent of the school buildings now in use have been condemned as unsafe or unsanitary. In addition, 76 condemned buildings are reported from cities in other states, establishing the fact that 5121 condemned buildings are in use. The number still in service in the states not reporting on this item can only be estimated, but the reports at hand seem to provide a reasonably satisfactory basis for such an estimate. The situation

[1] For copies of the inquiry forms, see p. 33.

[2] For example, state school officers, fire marshals, or public health officials.

is known for two-fifths of the nation's school buildings, including reports from states in all the geographic sections of the United States—from states varying in age, per capita wealth and income, density of population, industrial activity, and educational traditions. Furthermore, the replies from city school systems in states not represented in Table 1 show a slightly higher percentage of condemned buildings still in use than in cities in the 18 states included: 1.8 percent as compared with 1.4 percent for 163 cities, including 69 cities in the 18 states. Since conditions in the city schools of the states not reporting are as bad as, or worse than, those in the cities of the states which replied, there is little likelihood of a smaller proportion of condemned buildings in the rural areas of states omitted from Table 1. Apparently, conditions are best in the large urban communities. In cities over 100,000 in population only 0.4 percent of the school buildings in use have been condemned as unfit for further service; in cities 30,000 to 100,000 the percent is 3.5; in the states covered it is 5.0 percent. If, then, conditions in states not reporting are the same as in the 18 states for which the facts are known, about 12,300 buildings[3] actually condemned by public officials as unsafe or unsanitary are still being used to house school children.

If the percentages of condemned buildings in all comparable cities of the United States are identical with those for the cities in Table 1,[4] the following estimates would be correct: in cities over 100,000 in population, 33 condemned buildings; in cities 30,000 to 100,000 in population, 152. In other words, in cities over 30,000 in population, where school building needs apparently have been provided for best, nearly 200 condemned structures are a daily menace to the health and safety of boys and girls.

[3] Five percent of the nation's 245,941 school buildings (U. S. Dept. of the Interior, Office of Education. "Statistics of State School Systems, 1931-32." *Biennial Survey of Education: 1930-32.* Bulletin, 1933, No. 2. Washington, D. C.: Government Printing Office, 1933. p. 70. Ch. I; advance pages.) is 12,297.

[4] Four-tenths of one percent of 8334 buildings; 3.5 percent of 4345. The total number of buildings in cities of each class in 1932 is reported in: U. S. Dept. of the Interior, Office of Education. "Statistics of City School Systems for the Year 1931-32." *Biennial Survey of Education: 1930-32.* Bulletin, 1933, No. 2. Washington, D. C.: Government Printing Office, 1933. p. 25. (Ch. II: advance pages.) The basis for estimates relating to city school systems seems quite reliable. Reports were received from 1 to 22 cities in 39 states, covering more than 50 percent of the school buildings in cities over 30,000 in population. In order to test further the adequacy of sample at hand, the replies from cities in each population group were tabulated first in two groups, using alternate reports from lists arranged alphabetically by states and by cities within each state. Percentages were then computed for each half of the complete tabulation. For a summary of the computation based on alternate reports see p. 34.

TABLE 1.—NUMBER OF CONDEMNED BUILDINGS STILL IN USE IN 18 STATES AND 163 CITIES

Areas represented	Buildings located in areas represented		Condemned buildings	
	Number	Percent of all buildings in comparable areas[a]	Number	Percent
1	2	3	4	5
18 states[b]	100,512	40.9	5,045	5.0
94 cities in other states	4,313	34.0	76	1.8
49 cities over 100,000	4,487	53.8	20[c]	0.4
114 cities 30,000-100,000	2,210	50.9	77[c]	3.5
163 cities	6,697	52.8	97[c]	1.4
Total number reported (excluding duplicates)			5,121	

[a] Since, according to "Statistics of State School Systems, 1931-32" (U. S. Dept. of the Interior, Office of Education. *Biennial Survey of Education in the United States: 1930-32.* Bulletin, 1933, No. 2. Ch. I; advance pages. p. 70.), there are 245,941 school buildings in continental United States, the 100,512 buildings in the 18 states reporting constitute 40.9 percent of the total number. Similarly, there are 12,679 buildings in all cities in the population groups covered by this inquiry: 8334 in cities over 100,000 in population and 4345 in cities 30,000 to 100,000 in population as reported in "Statistics of City School Systems for the Year 1931-32" (U. S. Dept. of the Interior, Office of Education. *Biennial Survey of Education in the United States: 1930-32.* Bulletin, 1933, No. 2. Ch. II; advance pages. p. 25.) Based on these totals, the reports from 94 cities represent 34 percent of all buildings in comparable cities; those for 49 cities, 114 cities and 163 cities represent 53.8, 50.9, and 52.8 percent, respectively.

[b] The states represented are: Colorado, Connecticut, Delaware, District of Columbia, Florida, Indiana, Kentucky, Maryland, Michigan, Missouri, Nebraska, New York, North Carolina, Ohio, Pennsylvania, South Carolina, South Dakota, and Wisconsin. It should be noted that California, where large numbers of school buildings have been condemned recently because of earthquake hazards, is not among the states reporting.

[c] These figures are excluded from the total (5121) because some of the cities may have been covered by the state reports.

Children housed in condemned buildings—The number of children attending school in the dilapidated structures discussed above is indicated in Table 2. More than 645,000 are reported from 17 states,[5] and 42,577 from 95 cities in other states. Using the methods already described,[6] estimates can be derived for all cities over 30,000 and for the nation as a whole. The possibility of error in estimating from a sample must be recognized, but it seems probable that the situation is essentially as follows: In cities over 30,000 in population, where conditions are best, about 98,300 pupils are housed in condemned school buildings: 73,300 in cities 30,000 to 100,000, and 25,000 in cities over 100,000 in population.[7] In the nation as a whole about 1,392,600 pupils occupy buildings that have been pronounced unsafe or unsanitary.[8] This number is greater than the total school enrolment in large populous states such as California, Ohio, or Texas; it is equal to the entire population of Nebraska.

Part-time Attendance

Number of children sharing school buildings on a part-time basis—Another evidence of the need for additional school buildings is the maintenance of schools on a part-time basis. One of the questions asked in the present investigation was, "How many children are attending school part time because of inadequate building facilities?" Replies to this question from 20 states, and from 108 cities in other states, are summarized in Table 3. In this instance conditions are least satisfactory in the largest urban communities. In 49 cities over 100,000 in population, 4.6 percent of the pupils enrolled are permitted to attend school only part time. In cities 30,000 to 100,000 the percent drops to 2.4. In the 20 states reporting, 2.3 percent of the pupils were attending on the share-the-school basis. It is certain that more than 390,000 pupils can attend school only part time, and if the data in Table 3 are representative, more than 600,000 children are following this makeshift arrangement.[9] Estimates of unavoidable part-time attendance in city school systems only would be as follows: (1) cities over 100,000 in population, 288,287 pupils;[10] and (2) cities 30,000 to 100,000 in population, 53,308 pupils.[11]

[5] The 17 states are: Colorado, Connecticut, District of Columbia, Florida, Indiana, Kentucky, Maryland, Michigan, Missouri, Nebraska, New York, North Carolina, Ohio, Pennsylvania, South Carolina, South Dakota, and Wisconsin. Delaware reported the number of condemned buildings still in use (see Table 1) but could not give the number of pupils housed in such buildings.

[6] See footnotes 3 and 4 and the discussion to which they refer.

[7] Three and three-tenths percent of 2,221,149 (the 1932 enrolment in cities 30,000 to 100,000) is 73,298; 0.4 percent of 6,267,111 (the 1932 enrolment in cities over 100,000) is 25,068.

[8] Five and three-tenths percent of 26,275,441 (the nation's enrolment in 1932) is 1,392,598.

[9] Two and three-tenths percent of 26,275,441 (the nation's 1932 enrolment) is 604,335.

[10] Four and six-tenths percent of 6,267,111, the 1932 enrolment of cities in this population group.

[11] Two and four-tenths percent of 2,221,149, the 1932 enrolment of cities in this population group.

TABLE 2.—NUMBER OF CHILDREN ATTENDING SCHOOL IN BUILDINGS CONDEMNED AS UNSAFE OR UNSANITARY IN 17 STATES AND 163 CITIES

Areas represented	Pupils in the areas represented		Pupils attending school in condemned buildings	
	Number	Percent of all pupils in comparable areas[a]	Number	Percent
1	2	3	4	5
17 states[b]	12,256,946	46.6	645,034	5.3
95 cities in other states	2,529,095	29.8	42,577	1.7
49 cities over 100,000	3,079,031	49.1	10,952[c]	0.4
114 cities 30,000-100,000	1,116,791	50.3	36,824[c]	3.3
163 cities	4,195,822	49.4	47,776[c]	1.1
Total number reported (excluding duplicates)			687,611	

[a] Computed from totals appearing in: U. S. Dept. of the Interior, Office of Education. *Biennial Survey of Education: 1930-32.* Bulletin, 1933, No. 2. Washington, D. C.: Government Printing Office, 1933. (Ch. I and II; advance pages.) For the method used see footnote "a" in Table 1.

[b] These states are listed in footnote "5" p. 10.

[c] Excluded from the total because of possible duplication.

TABLE 3.—NUMBER OF PUPILS IN 20 STATES AND 163 CITIES WHO CAN ATTEND SCHOOL ONLY PART TIME BECAUSE OF INADEQUATE HOUSING FACILITIES

Areas represented	Pupils in the areas represented		Pupils attending school part time	
	Number	Percent of all pupils in comparable areas[a]	Number	Percent
1	2	3	4	5
20 states[b]	10,604,934	40.4	246,086	2.3
108 cities in other states	2,803,443	33.0	145,662	5.2
49 cities over 100,000	3,079,031	49.1	142,926[c]	4.6
114 cities 30,000 to 100,000	1,116,791	50.3	26,324[c]	2.4
163 cities	4,195,822	49.4	169,250[c]	4.0
Total number reported (excluding duplicates)			391,748	

[a] Computed from totals appearing in: U. S. Dept. of the Interior, Office of Education. *Biennial Survey of Education in the United States: 1930-32*. Bulletin, 1933, No. 2. Washington, D. C.: Government Printing Office, 1933. (Ch. I and II: advance pages.) For the method used see footnote "a" in Table 1.

[b] The states represented are: Arizona, Colorado, Connecticut, Delaware, District of Columbia, Florida, Indiana, Kentucky, Maryland, Michigan, Nebraska, North Carolina, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Washington, and Wisconsin.

[c] Excluded from the total because of possible duplication.

Portable, Rented, and Other Temporary Structures

Number of pupils housed in temporary buildings—A third criterion of building needs is the number of pupils housed in portable, rented, and other temporary structures. The number of children housed in such temporary quarters in 23 states and 82 cities in other states is given in Table 4. Here again the condition is somewhat worse in urban districts than in the country at large. More than 600,000 children are actually reported as attending school in portable, rented, or other temporary buildings, and estimating from the data at hand, it seems probable that approximately 1,000,000 children are housed in such structures.[12]

[12] Four percent of the nation's 1932 enrolment is 1,051,017. Estimates for city school systems similar to those given in earlier sections of this report would be: (1) cities over 100,000: 250,684 pupils in temporary buildings; and (2) cities 30,000 to 100,000: 57,750 pupils.

TABLE 4.—NUMBER OF PUPILS HOUSED IN PORTABLE, RENTED, AND OTHER TEMPORARY STRUCTURES IN 23 STATES AND 163 CITIES

Areas represented	Pupils in the areas represented		Pupils housed in temporary structures	
	Number	Percent of all pupils in comparable areas[a]	Number	Percent
1	2	3	4	5
23 states[b]	12,305,065	46.8	494,568	4.0
82 cities in other states	2,343,864	27.6	123,500	5.3
49 cities over 100,000	3,079,031	49.1	122,801[c]	4.0
114 cities 30,000 to 100,000	1,116,791	50.3	28,941[c]	2.6
163 cities	4,195,822	49.4	151,742[c]	3.6
Total number reported (excluding duplicates)			618,068	

[a] Computed from totals appearing in: U. S. Dept. of the Interior, Office of Education. *Biennial Survey of Education in the United States: 1930-32*. Bulletin, 1933, No. 2. Washington, D. C.: Government Printing Office, 1933. (Ch. I and II; advance pages.) For the method used see footnote "a" in Table 1.

[b] The states represented are: Arizona, Colorado, Connecticut, Delaware, District of Columbia, Florida, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Mississippi, Nebraska, North Carolina, Ohio, Pennsylvania, South Carolina, South Dakota, Utah, Washington, West Virginia, and Wisconsin.

[c] Excluded from the total because of possible duplication.

Number of Pupils Improperly Housed

Table 5, a summary of the totals reported in Tables 2, 3, and 4, shows that in the regions covered by this report 1,697,427 children are attending school only part time or are housed in temporary structures and condemned school buildings. If these data are representative, nearly 2,700,000 pupils[13] are improperly housed, *using that term to cover only the conditions summarized in this report.* Undoubtedly, thousands of pupils are "improperly housed" in addition to those who are attending school only part time and who attend in temporary or condemned school buildings. This general survey has revealed only the most obvious and deplorable building needs.

TABLE 5.—NUMBER OF PUPILS ATTENDING SCHOOL ONLY PART TIME OR HOUSED IN TEMPORARY STRUCTURES AND CONDEMNED SCHOOL BUILDINGS

Condition reported	Number of pupils[a]
1	2
Attending school on a part-time basis	391,748
Housed in temporary structures	618,068
Housed in condemned school buildings	687,611
Total	1,697,427

[a] These figures, drawn from Tables 2, 3, and 4, represent less than half the states plus about half of the cities over 30,000 in population in the states otherwise omitted.

Age of School Buildings

Since the age of school buildings is related definitely to the present status of the nation's schoolhousing facilities, information was sought on this point. Table 6 presents data from the state departments which were able to classify their school buildings according to age. Approximately 8 percent of the school buildings in 10 states reporting date back to the Civil War period. If this is typical for the nation as a whole, nearly 20,000 school buildings now in use were constructed before 1870.[14] More than one-third of the buildings now in use were constructed from 1870 to 1899. Less than 5 percent have been constructed since 1930.

One-room buildings in use are somewhat older than buildings of other types. Eight and one-tenth percent of the one-room schools were constructed before 1870, as compared with 6.8 percent for buildings of other types. Also, a much larger proportion of the one-room schools belong to the period 1870 to 1899 than is the case for buildings of other types. Less than half of the one-room buildings were constructed between 1900 and 1929, and only 3 percent since 1930.

Table 7 shows the approximate age of school buildings in cities over 30,000 in population. The percentage of school buildings constructed in each of the four periods in cities

[13] Estimates given previously were: (1) in temporary buildings, at least 1,000,000 pupils; (2) in condemned buildings, about 1,392,600; and (3) attending part time, approximately 600,000. Adding 1,000,000; 1,392,600; and 300,000 (half the part-time pupils), the sum is 2,692,600.

[14] Seven and six-tenths percent of 245,941, the number of buildings in use in 1932, is 18,692.

TABLE 6.—APPROXIMATE AGE OF SCHOOL BUILDINGS IN 10 STATES

Date of construction	One-room buildings		All others		Bldgs. of all types	
	Number	Percent	Number	Percent	Number	Percent
1	2	3	4	5	6	7
Before 1870	2,082	8.1	1,122	6.8	3,204	7.6
1870-1899	10,615	41.2	3,973	24.0	14,588	34.4
1900-1929	12,296	47.7	10,304	62.2	22,600	53.4
Since 1930	779	3.0	1,157	7.0	1,936	4.6
Total	25,772	100.0	16,556	100.0	42,328	100.0

Based on reports from: Colorado, Connecticut, District of Columbia, Kentucky, Maryland, Michigan, Mississippi, South Carolina, South Dakota, and West Virginia.

TABLE 7.—APPROXIMATE AGE OF SCHOOL BUILDINGS IN 163 CITIES

Date of construction	49 cities over 100,000		114 cities 30,000-100,000		163 cities over 30,000 population	
	Number of buildings	Percent	Number of buildings	Percent	Number of buildings	Percent
1	2	3	4	5	6	7
Before 1870	149	3.4	68	3.2	217	3.3
1870-1899	1,187	26.8	625	29.6	1,812	27.7
1900-1929	2,811	63.3	1,306	61.7	4,117	62.8
Since 1930	290	6.5	116	5.5	406	6.2
Total	4,437	100.0	2,115	100.0	6,552	100.0

over 100,000 is virtually the same as the corresponding percentage in cities 30,000-100,000. Estimating on the basis of returns from 163 cities, it is probable that 418 school buildings in use in cities over 30,000 in population were erected prior to 1870, that 3512 were constructed between 1870 and 1899, 7962 between 1900 and 1929, and 786 during the past four years.[15]

The Consolidation of Schools

The consolidation of small schools has long been advocated by students of educational problems as a means of improving the quality of instruction and in the interest of economy. One of the chief barriers to this needed reform has been the inability of the districts concerned to provide the necessary buildings. The present inquiry asked the state departments to report the number of consolidations that ought to be effected, the number of pupils that would be involved in such consolidations, and what effect the proposed consolidations would have on the number of school buildings used in the areas concerned. Data from 21 states are summarized in Table 8. In the opinion of the chief school officers in these states, more than 7000 consolidations should be made, reducing the number of schools in the districts involved from 34,789 to 7169 and resulting in better educational opportunity for 2,301,220 children. Estimating from these figures, approximately 16,000 consolidations[16] ought to be effected in the country as a whole for the better education of about 5,000,000 children.[17]

[15] Obtained by applying the percents given in column 7 of Table 7 to 12,679, the number of school buildings in cities over 30,000 in population in 1932.

[16] Six and six-tenths percent of the nation's 245,941 school buildings is 16,232.

[17] Eighteen and one-tenth percent of 26,275,441, the 1932 enrolment, is 4,755,855.

TABLE 8.—PROPOSED CONSOLIDATIONS OF SMALL SCHOOLS IN 21 STATES

	Number reported	Total number in the 21 states	Percent column 2 is of column 3
1	2	3	4
Proposed consolidations	7,169	108,615 [a]	6.6
Existing schools involved	34,789	108,615 [a]	32.0
Pupils affected	2,301,220	12,693,422 [b]	18.1

Based on reports from: Arizona, Connecticut, Florida, Indiana, Kentucky, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Nebraska, North Carolina, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Washington, West Virginia, and Wisconsin.

[a] The 108,615 school buildings in the 21 states reporting constitute 44.2 percent of the total for the nation.

[b] The 12,693,422 pupils in the 21 states reporting constitute 48.3 percent of the nation's total enrolment.

The School Building Needs of the Several States

Specific information with regard to the school building needs of sixteen states is summarized in the paragraphs that follow:

Arkansas—In 1930, a survey of the financial and administrative needs of the public schools of Arkansas was completed, recommending among other things the complete reorganization of the educational system, the abolition of the district system, and the consolidation of rural schools. The plan outlined by the survey commission proposed the operation of 1784 schools instead of the 4198 then in existence, in other words, the abolition of about 2400 obsolete schools.[18] The reorganization is going forward as rapidly as funds will permit, but at the present time there is an urgent need for about 500 buildings that cannot be financed from local and state resources. Could these buildings be erected, the entire state school system would be organized on a more economical and efficient basis.

California—A committee of prominent educators in California recently described their schoolhousing situation as follows:[19]

> Capital outlay for new buildings has been reduced to an absolute minimum. Practically no new building is being done. Serious deficiencies in schoolhousing facilities are developing thruout the state. Particularly in the south, where the menace of seismic disturbances is clearly recognized, housing conditions are extremely critical. Thousands of children are on half-day sessions, or are attending school in tents, or in other temporary housing units while their school buildings stand condemned as unsafe for use, and the community is entirely without the ability to raise the money to strengthen them, and to restore them to use. If conditions should become normal, from an economic standpoint, some of the major cities in southern California would not out of their own resources be able to restore their school buildings to use within ten years. In many cases, these cities face the necessity of rebuilding their entire school plant at a cost, at present prices, equal to almost double the original investment. In most cases, these condemned buildings were erected out of moneys raised by bonds which have not as yet been retired. The reduction in real estate values and tax limits imposed by recent legislation reduced the ability of these districts to raise money practically to the zero point. The result is an impasse. The buildings have been abandoned, children housed temporarily in tents, reduced to half-day sessions, or any other makeshift arrangement which the community could hastily devise, and the schools are at present proceeding under these conditions with no prospect of any immediate improvement. The repair and maintenance of school buildings have been neglected to a point where valuable investments are being destroyed thru neglect of those repairs necessary to decent upkeep.

Colorado—Table 9 presents the results of an unpublished survey of school building needs

[18] Dawson, Howard A., and Little, Harry A. *Financial and Administrative Needs of the Public Schools of Arkansas.* Little Rock: the State Department, 1930. See especially Volume I, p. 42.

[19] Joint Commission on the Emergency in Education. *Minutes.* Sixteenth Regional Conference of Consultants. Los Angeles, Calif., November 10, 1934. Washington, D. C.: National Education Association, 1934. (From a report of a subcommittee of the conference on "Finance.")

TABLE 9.—SCHOOL BUILDING NEEDS IN 47 COUNTIES IN THE STATE OF COLORADO

Needs	Number in schools of various sizes				Total
	One room	Two rooms	Three and four rooms	Five rooms or more	
1	2	3	4	5	6
New buildings	120	20	20	31	191 [a]
Additions:					
Classrooms	52	15	8	67	142
Gymnasiums	21	11	9	66	107
Auditoriums	21	11	12	55	99
Toilets	54	7	11	17	89
Cloakrooms	2	..	..	1	3
Repairs:					
New roofs	41	11	9	59	120
New foundations	153	9	9	18	189
New floors	160	16	28	60	264
Painting jobs	420	51	48	115	634

Source: Colorado State Department of Education. *Summary of Building Survey, State of Colorado; 1934.* Denver: the Department, 1934. 9 p. (typewritten.)

[a] The 191 buildings would contain about 600 classrooms.

in 47 of the 63 counties in Colorado, conducted during the summer of 1934 by the state department of education. In these counties nearly 750 additional classrooms are needed and a considerable amount of remodelling and repair work should be done.

District of Columbia—Even in the nation's capital a serious shortage of school building facilities exists. The needs are summarized in Table 10. Additional classrooms are needed at the elementary-school level to serve the following purposes: (1) 12 rooms to take the place of portables now in use; (2) 17 to eliminate the use of undesirable rooms; (3) 56 to reduce oversize classes; (4) 8 to eliminate part-time classes; (5) 36 to abandon schools recommended for early abandonment in 1908; and (6) 9 to provide for increased enrolment.

TABLE 10.—SCHOOL BUILDING NEEDS IN THE DISTRICT OF COLUMBIA

Type of school	Facilities needed	Estimated cost
1	2	3
Elementary	138 classrooms and 10 assembly-gymnasiums	$2,410,000 [a]
Junior high	3 buildings (1 replacement and facilities for 1172 additional pupils)	1,425,000
	Building sites for the 2 new schools proposed	175,000
Senior high	Facilities for 1883 pupils	1,925,000
Vocational	Two buildings (replacements)	630,000
Total		$6,565,000

Source: District of Columbia Public Schools. *Analysis and Interpretation of the Statistical Report on Schoolhouse Accommodations.* Washington, D. C.: Superintendent's Office, February 21, 1934. 22 p. (mimeo.)

[a] This estimate does not include the cost of building sites.

Thirty-three percent of all elementary classes in Washington enrol more than 40 pupils. Some of the "undesirable rooms" now in use include the following:[20]

A teachers' room is used for a regular class.

One janitor's room is being used for a first-grade class. The janitor's room is in the old part of the building adjacent to the heating plant.

A comparatively large entrance hall . . . is being used for a kindergarten.

The girls' playroom is used for manual training.

A corridor is being used for a domestic art class.

The intended capacity of secondary-school buildings and actual enrolments in them on November 1, 1933 are given below:

	Capacity	Enrolment
Junior high schools	15,080	16,252
Senior high schools	13,260	15,143

Kentucky[21]—Twenty-two percent of all the school buildings in the state were constructed prior to 1907. In 1932, the average value of school property per pupil enrolled was $101 in Kentucky as compared with a national average of $250.[22] Only 6 states had a lower per pupil average. In county districts, where 65 percent of the pupils are enrolled, the per pupil value is approximately $39. Sixty-seven percent of the buildings in county districts are rated "average," "poor," or "very poor." Approximately 76 percent of all the school buildings of the state are one-room schools and 96 percent of these are of frame construction. They are described as follows:

Most of the small rural schools of the state are poorly planned, box-like structures, with windows on both sides and the flue in the center. In many instances, the school building consists of four bare walls, with no provision for pupils' wraps, or any built-in shelving, or other special features so essential to a desirable school program. A large percentage of the smaller schools are set on locust posts, or stone or concrete piers, without other underpinning. Only in a few instances is there a solid foundation or a sub-floor. Consequently, these schools are very uncomfortable in severe weather to both teachers and pupils. The old-fashioned, unjacketed stove is still the principal source of heat. It is usually placed in the center of the room and those children immediately around the stove scorch with the intense heat while those in the far corners suffer with the cold. . . . In some cases, the building has never received a coat of paint, the roof leaks, the walls are marked and open, window panes are shattered, and the floor is rough and uneven . . . Rural school sites are invariably small.

[20] District of Columbia Public Schools. *Anaylsis and Interpretation of the Statistical Report on Schoolhouse Accommodations.* Washington, D. C.: Superintendent's Office, February 21, 1934. p. 4-5 (mimeo.)

[21] Kentucky Educational Commission. *Report of the Kentucky Educational Commission.* Educational Bulletin, Vol. 1, No. 8, Frankfort, Kentucky: State Department of Education, October, 1933. Ch. V, "School Buildings and Grounds," p. 121-34.

[22] U. S. Department of the Interior, Office of Education. "Statistics of State School Systems, 1931-32." *Biennial Survey of Education: 1930-32.* Bulletin, 1933, No. 2. Washington, D. C.: Government Printing Office, 1933. p. 71. (Ch. I; advance pages.)

. . . Very often school grounds are acquired simply because the character of the soil renders it worthless for any other use.[22]

The situation in city school districts is somewhat better, for 89 percent of the buildings are of masonry construction. But even in the cities, 38 percent of the buildings are more than 25 years old, many of them obsolete and quite unsatisfactory.

[22] Kentucky Educational Commission, *op. cit.*, p. 124-25.

Maryland—School building needs in the state of Maryland are summarized in Table 11. Nearly $5,000,000 would be required to provide the facilities now lacking.

Mississippi—Some outstanding facts from a school building survey conducted in Mississippi during 1934 are presented below. Table 12 shows the number of schools housed in publicly owned buildings and those housed in

TABLE 11.—ESTIMATED NEED OF FUNDS FOR LAND AND NEW SCHOOL CONSTRUCTION IN 23 COUNTIES IN MARYLAND, JULY 1933

County	Number of buildings or parts of buildings needed	Class-rooms needed	Number of pupils to be provided for	Approximate cost of projects	Building sites, special rooms, and other types of improvement
1	2	3	4	5	6
Allegany	7	79	2,820	$1,000,000	
Ann Arundel	7	16	725	74,000	2 auditoriums; sanitary equipment
Baltimore	3	32	1,260	237,500	1 auditorium; sanitary equipment 2 bldgs; improvement of grounds
Calvert	3	4	85	12,800	Water system in 2 bldgs.
Caroline	0	0	0	0	
Carroll	3	39	..	250,000	3 auditoriums
Cecil	1	16	400	120,000	Auditorium, library, laboratories, office, and all other special rooms
Charles	1	1	60	1,500	
Dorchester	0	0	0	0	
Frederick	2	42	1,250	415,000	Auditorium, gym., and cafeteria
Garrett	6	26	1,090	70,000[a]	1 auditorium; sanitary equipment 4 bldgs.
Harford	3	12	355	90,000	2 auditoriums; improvement of grounds
Howard	2	12	355	56,000	
Kent	6	31	690	235,000	2 auditoriums; 2 gyms.; 1 cafeteria; bldg. repairs
Montgomery	14	96	1,440[b]	751,000	Equipment and sites amounting to $115,000
Prince Georges	16	67	2,715	450,000	4 auditoriums; land, alterations; sanitary equipment
Queen Annes	4	10	358	34,400	
St. Marys	5	12	60[b]	65,000	1 auditorium
Somerset	2	27	750	135,000	
Talbot	5	16	500	101,200	1 auditorium; 1 gym.; alterations
Washington	3	12	455	97,000	Sanitary equipment
Wicomico	8	56	2,785[b]	444,500	Land; fencing
Worcester	5	36	1,280	175,000	1 auditorium
Total	106	642	19,433[c]	$4,814,900	——[d]

Source: State Department of Education. *Estimated Need of Funds for Land and New School Construction as Reported by Maryland County Superintendents of Schools, July 1933.* Baltimore: the State Department, 1933. 8 p. (typewritten.)

[a] Minimum figure. The estimate is given as $70,000 to $85,000.

[b] Estimate covers only certain ones of the building projects listed.

[c] Using the 478 classrooms for which a definite number of pupils is given, the average number of pupils per classroom is 32.

[d] Auditoriums in 20 buildings; sanitary equipment in 6 cases; gymnasiums in 4 buildings; 2 cafeterias; other special rooms such as libraries, offices, laboratories, locker rooms, etc.; improvement of grounds; fencing; water systems; land sites; alterations; and repairs.

TABLE 12.—OWNERSHIP OF BUILDINGS USED FOR SCHOOL PURPOSES IN MISSISSIPPI

	Number of schools	Percent	Number of teachers	Percent	Number of pupils	Percent
1	2	3	4	5	6	7
Buildings not publicly owned	1,506	27.1	1,872	11.8	82,940	15.0
Publicly owned buildings	4,048	72.9	14,046	88.2	468,660	85.0

Source: Mississippi State Department of Education. *Some Facts Derived from the School Plant Survey.* Jackson: the State Department, 1934. 7 p. (mimeo.)

rented buildings, churches, or other makeshift quarters. The latter comprise more than one-fourth of the total. Publicly owned facilities are lacking for nearly 83,000 pupils.

More than four-fifths of the publicly owned buildings are of frame construction and about 3500 of the 4048 buildings in the state are heated with unjacketed stoves. Additional evidences of unsatisfactory schoolhousing in Mississippi are given in Table 14; the number and approximate cost of school buildings that should be constructed immediately are shown in Table 13. With reference to this table the state department writes:

> The work included in the estimates enclosed herewith does not include all work needed to bring Mississippi schools up to the average for the United States. To do this would entail an expenditure of approximately $100,000,000. Only the work which is considered most urgent is included.

TABLE 13.—NEW SCHOOL BUILDINGS URGENTLY NEEDED IN MISSISSIPPI

Size of building	Number of buildings needed	Estimated cost of construction	Number for which plans are ready
1	2	3	4
One room	1,066	$1,599,000	1,066
Two to four rooms	429	1,899,000	411
Five to ten rooms	250	3,970,000	37
Eleven rooms or more	105	3,720,000	...
Total	1,850	$11,188,000	1,514

Source: Mississippi State Department of Education. *Some Facts Derived from the School Plant Survey.* Jackson: the State Department, 1934. 7 p. (mimeo.)

Missouri[24]—The average value of school buildings in Missouri is $235 per pupil, but the average for rural school buildings is only $98. There are 163,000 pupils attending school in buildings worth less than $100 per pupil and over 200,000 in buildings worth less than $150 per pupil.

[24] Based on a letter from N. E. Viles, director of School Building Service, Missouri Department of Public Schools, April 30, 1934.

TABLE 14.—WATER SUPPLY AND SANITARY FACILITIES IN MISSISSIPPI SCHOOLS

Source of water supply	Number of schools[a]	Type of toilet	Number of schools[a]
1	2	3	4
No water supply	1,681	No facilities whatever: for boys	1,693
A polluted water supply[b]	157	for girls	1,044
Municipal water supply	432	Chemical or water-flush	481
Deep wells	831	Sanitary out-buildings:[c] for boys	809
Shallow wells	745	for girls	858
Cisterns	193	Outside toilets of the open pit or surface type	All other schools
Springs	166		

Source: Mississippi State Department of Education. *Some Facts Derived from the School Plant Survey.* Jackson: the State Department, 1934. 7 p. (mimeo.)

[a] This tabulation does not include the 1506 schools for which there are no publicly owned plant facilities.

[b] Surface water actually drains into the well, spring, or cistern.

[c] "Sanitary" means that the building is fly tight, has a vault and lids for the seats, and is vented.

Assuming that the normal life of a building is 40 years, Missouri should spend between three and four million dollars each year for replacement purposes alone.

New Jersey[25]—One school building still in use was erected in 1784—prior to the adoption of the federal Constitution. Twenty-three buildings still in use average 91 years old; 632 buildings average 57 years old; half the buildings in the state were built prior to 1908. "Nearly one-fifth of the school buildings of the state need replacing because they are worn out or unsuited to present needs. In November 1930, 33,880 children were on part-time schooling because of the shortage of seats in some communities." In spite of the unsatisfactory conditions described above, expenditures for capital outlay in New Jersey dropped from $24,228,261 in 1930 to $11,556,217 in 1932.[26]

New York[27]—From New York comes the report that "for nearly three years school building construction in this state has been at a standstill. If conditions were normal we would have fifteen to twenty million dollars worth of schoolhouse construction annually."

North Carolina[28]—At the close of the school year 1930-31 the total value of school property in the state was $112,930,371. There were 5664 school buildings, of which about 1600 were of the rural one-room type. An important problem in North Carolina is to eliminate a large number of small schools of the one-, two-, and three-room type. It is estimated that $15,000,000 should be spent for school buildings during the next two years.

Oklahoma[29]—Dozens of school buildings have been condemned as unsafe and unsanitary, and many others would have been by this time if the state department of public instruction had not recently asked the state fire marshal and county health commissioners to withhold condemnation orders in school districts which cannot finance a building program. This step has been taken to prevent useless worry and disturbance in districts where there is no possibility of correcting the situation. About 20 percent of the children in the state are housed in buildings that are unsafe and unsanitary.

Oklahoma, unlike many other states, was settled over a period of just a few years. Most of the school buildings in the state were built in the ten-year period, 1900 to 1910. Most of them were of such cheap construction that they are now in an unsafe condition. The state superintendent writes: "Our situation for school buildings is quite like the one-horse shay—the whole thing is going to pieces at once."

South Carolina—The director of the division of schoolhouse planning and construction in the South Carolina State Department of Education describes their situation as follows:

> Practically no new buildings have been constructed since 1929, except to replace buildings destroyed by fire or storm. Approximately one-half of the rural school buildings are in such dilapidated condition or of such poor type of construction as to be unfit for school use. To replace these buildings would require $5,000,000. The local districts being dependent entirely upon agricultural income are unable to pay the cost of this program. No state or county aid is available. Approximately 1200 negro schools are being operated in lodge halls, churches, and tenant houses not owned by the district. None of such buildings are suitable for school purposes. To replace these buildings would require $4,000,000. To remodel, repair, and replace village schools so as to provide an adequate educational program would require an outlay of approximately $5,000,000. To provide adequate classroom facilities for city schools would require the construction of approximately 500 new general and specialized classrooms at a cost of $2,000,000, and the remodeling of 1000 classrooms at a cost of $2,000,000.[30]

Tennessee[31]—A committee which has been studying the schoolhousing situation in Tennessee reports that $50,000,000 is a conservative estimate of the amount needed for school buildings in that state. There is urgent need

[25] New Jersey Commission To Investigate County and Municipal Taxation and Expenditures. *A Report on Educational Services and Costs.* Report No. 8. Trenton, N. J.: MacCrellish and Quigley Co., 1932. 154 p.

[26] U. S. Department of the Interior, Office of Education. "Statistics of State School Systems, 1931-32." *Biennial Survey of Education: 1930-32.* Bulletin, 1933, No. 2. Washington, D. C.: Government Printing Office, 1933. p. 110. (Ch. I; advance pages.) Also, Bulletin, 1931, No. 20. p. 77.

[27] Based on a letter from J. H. Hixson, director of School Buildings and Grounds Division, University of the State of New York, April 6, 1934.

[28] Based on a letter from W. F. Credle, director of Schoolhouse Planning, North Carolina Department of Public Instruction, April 19, 1934.

[29] Based on a letter from State Superintendent John Vaughan, September 29, 1934.

[30] Letter from S. P. Clemons, director of the Division of Schoolhouse Planning and Construction, South Carolina State Department of Education, April 7, 1934.

[31] Based on a letter and typewritten survey report submitted to the Research Division of the National Education Association by Commissioner Walter D. Cocking, State Department of Education, April 12, 1934.

for the immediate expenditure of nearly one-fifth of that amount, and detailed plans are ready for the projects thus proposed. In brief, the plan calls for the expenditure of about $2,596,000 on buildings where no further consolidation of schools is involved, and the use of $7,197,000 in consolidating small schools. The consolidation plan contemplates 107 six-room buildings, 69 eight-room buildings, 36 twelve-room buildings, and 19 buildings ranging in size from fifteen to twenty-four rooms. These 231 schools would replace 985 small, obsolete buildings now in use. The effect of consolidation in three counties is indicated in Table 15.

Texas[32]—The normal annual expenditure for school buildings in Texas is about $12,000,000. The total expenditure since 1932 is about $33,000,000 less than it would have been in a normal four-year period. It would require an outlay of about $20,000,000 during the next eighteen months to place the physical plants in Texas in reasonably good condition.

West Virginia—In 1929 a survey of education in West Virginia was completed.[33] In this survey report 88.5 percent of the school buildings in West Virginia were classified as "frame buildings constructed with wood above foundation, with or without slate or other semi-fireproof material on roof." Only 34 of 7067 buildings, or 0.5 percent, were "entirely fire resisting." Almost five-sevenths were of the one-room type, and only 302 of the 7067 buildings contained more than nine rooms.

A large number of representative school buildings of each type were rated, using widely known and carefully standardized score cards. The median score for rural buildings was only 553, considerably lower than the recommended standard and 51 points lower than the median score of rural school buildings reported in 1922 in the rural school survey of the state of New York. The average estimated value of the one-room schools was only $858; approximately one-fifth were valued at less than $500. The survey report states:

> The probabilities are that a rural school of 50 or more years of age is unfit for further school use, although . . . nearly 10 percent of the one-teacher buildings were built previous to 1875 and are therefore more than 50 years of age. The median age for one-teacher schools is 25 years.[34]

[32] Based on a letter from J. Fred Horn, director of the School Plant Division, Texas Department of Education, April 7, 1934.

[33] Holy, Thomas C. *School Buildings*. Survey of Education in West Virginia, Vol. 3. Charleston: State Department of Education, 1929. 228 p.

[34] Holy, Thomas C., *op. cit.*, p. 34-35.

TABLE 15.—TYPICAL PLANS FOR CONSOLIDATION IN THE SCHOOLS OF TENNESSEE

New buildings needed		Number of buildings to be abandoned	Number of pupils involved
Type	Number		
1	2	3	4
County Number 1			
6-teacher	2		All the rural children of the county in the first nine grades; approximately 4,025
8-teacher	6		
12-teacher	4		
All types	12	76	
County Number 2			
12-teacher (high schools)	1	1 7-teacher, 4-year high school 5 1-teacher, 2-year high schools	275 pupils now attending poorly equipped, inefficient high schools
8-teacher	1	6	335
County Number 3			
8-teacher	1	An old church, an old theater, and an obsolete 3-room school	285

Source: Tennessee Department of Education. *Proposed Tennessee School Consolidation*. Nashville: the State Department, 1934. 11 p. (typewritten.)

About one-third of all school buildings in the state have less than 200 cubic feet of air space per pupil, the minimum amount recognized as satisfactory. More than half the one-teacher schools have cross lighting and only 17 percent have the type of window placement that is considered correct. Eighteen schoolrooms were found having windows on all four sides! The ratio of window glass area to floor area in West Virginia's one-room schools is given in Figure III. Other evidences of improper housing are summarized in Table 16.

TABLE 16.—CERTAIN UNSATISFACTORY CONDITIONS IN SCHOOL-HOUSING IN WEST VIRGINIA

Defect	Percent of schools	
	One-room	More than one room
1	2	3
Floors in unsatisfactory condition	34.1	22.1
Walls in unsatisfactory condition	32.3	32.1
Blackboards in unsatisfactory condition	41.2	20.1
Bulletin boards lacking	63.5	44.1
No bookcases or shelves for books	27.5	22.5
Stove heat	73.1	72.5
Buildings in need of major repairs	83.8	72.8
No water supply on grounds	32.6	35.1
Drinking facilities:		
Bucket and dipper	24.7	22.3
None	9.0	8.8
No washing facilities	23.3	15.2
Toilet facilities:		
Unsatisfactory distance from building	31.3	12.8
Insufficient seclusion	59.4	33.6
Inadequate facilities	24.9	37.1
Unsatisfactory condition	54.0	48.3
None provided	4.2	.8

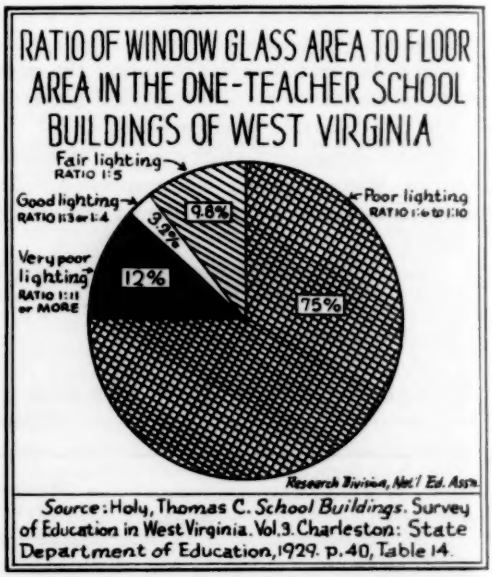
Source: Holy, Thomas C. *School Buildings.* Survey of Education in West Virginia. Vol. 3. Charleston: State Department of Education, 1929. Ch. 2.

The recent adoption of the county unit in West Virginia makes it possible for the first time to reorganize and consolidate the rural school system of that state. To carry out this reorganization, 103 six-room buildings, 69 eight-room buildings, and 64 twelve-room buildings are needed.[35] The ultimate success or failure of the county unit system in that state hinges in no small measure on the rapidity with which consolidated schools can be established.

Summary

The information presented in the foregoing paragraphs, altho by no means complete, shows that the need for additional school building facilities is widespread. Children are attending school part time because adequate schoolhousing facilities are lacking. Condemned school buildings are still in use. Schools are being maintained in portable, rented, and other temporary structures, and much needed consolidations are being postponed. In view of these facts, can the nation afford longer to continue the policy that has prevailed during the past four years? Can school building operations be suspended safely when the need for additional facilities is so urgent?

FIGURE III


RATIO OF WINDOW GLASS AREA TO FLOOR AREA IN THE ONE-TEACHER SCHOOL BUILDINGS OF WEST VIRGINIA
Fair lighting RATIO 1:5
Good lighting RATIO 1:3 or 1:4
Poor lighting RATIO 1:6 to 1:10
Very poor lighting RATIO 1:11 or MORE
9.8%
3.9%
12%
75%
Research Division, Nat'l Ed. Ass'n.
Source: Holy, Thomas C. School Buildings. Survey of Education in West Virginia. Vol. 3. Charleston: State Department of Education, 1929. p. 40, Table 14.

In addition to the facts already examined, these questions should be considered in the light of school building operations before the depression. The extent to which housing facilities are at present satisfactory, or unsatisfactory, can be judged in some measure by the building program carried on during the period of normal economic conditions. The next section of this bulletin, therefore, deals with the scope and adequacy of the nation's school building program during the decade prior to 1930.

[35] According to a letter from Superintendent W. W. Trent, West Virginia Department of Education, April 17, 1934.

III. School Building Construction Since 1918

Many people believe that school building construction ran far ahead of actual needs during the decade from 1920 to 1930. Tax reductionists especially are inclined to "view with alarm" the expenditures made during that period for school buildings. They declare that school authorities squandered the people's money. They deplore the fact that "ornate, palatial structures"—"cathedrals of learning"—have replaced the little red schoolhouse which they so highly revere. So loudly and persistently have these charges been voiced that they are accepted not only among the general public, but sometimes by people well informed on educational matters. For example, in a recent number of one of the leading journals of educational administration appears the following statement, written by a student of administrative problems: "The past decade has seen an orgy of building programs carried on in almost every school district in the nation." Is this statement true? Has the nation merely halted an unwarranted building program?

It is the purpose of these paragraphs to disclose the facts in the case—to inquire into the nature of this alleged "orgy" of school building by analyzing cost figures. Data pertaining to school buildings are presented in relation to enrolment trends, covering alternate years from 1918, the close of the war period, to the present time. Expenditures for building purposes are then analyzed for the principal cities of the United States from 1921 to 1933.

General overview of the school building program since 1918—Expenditures for sites, buildings, and equipment since 1918 are summarized in Table 17, together with enrolment figures and other data relating to the nation's school building program. In 1918 and 1920 expenditures for capital outlay were relatively small, amounting in the latter year to about $150,000,000. In 1922 they were approximately twice that amount. From 1924 to 1930 they ranged from about $375,000,000 to $400,000,000 per year. Since 1930, building activity has been checked so abruptly that during the last school year capital outlay is estimated at $101,468,000—considerably less than the expenditure in 1918. The years 1924 to 1930, therefore, are the ones to examine critically for evidences of over-building.

As a first step in the analysis of expenditures for school buildings, it seems advisable to note enrolment trends because these are roughly indicative of school building needs. Column 3 in Table 17 shows the total enrolment in alternate years and column 5 gives the average number of new pupils coming into the schools

TABLE 17.—SCHOOL BUILDING EXPENDITURES AND RELATED DATA, 1918-1934

Year	Capital outlay	Total enrolment	Capital outlay per pupil enrolled	Number of additional pupils yearly [a]	Capital outlay per additional pupil [b]
1	2	3	4	5	6
1918	$119,082,943	20,853,516	$5.71	250,915	$475
1920	153,542,852	21,578,316	7.12	362,400	424
1922	305,940,965	23,239,227	13.16	830,456	368
1924	388,469,143	24,288,808	15.99	524,791	740
1926	411,037,774	24,741,468	16.61	226,330	1,816
1928	382,996,156	25,179,696	15.21	219,114	1,748
1930	370,877,969	25,678,015	14.44	249,160	1,489
1932	210,996,262	26,275,441	8.03	298,713	706
1934	101,468,000 [c]	26,722,000 [c]	3.80	223,280	454

Source: U. S. Department of the Interior, Office of Education. *Biennial Survey of Education in the United States.* Volumes pertaining to the years covered. Washington, D. C.: Government Printing Office. Data are not collected regularly for the odd-numbered years.

[a] It is assumed that half of the growth in total enrolment during each biennium should be attributed to each of the two years involved. Figures in this column were obtained by taking half of each two-year increment.

[b] Derived from columns 2 and 5. These figures do not show the average expenditure for each pupil for whom buildings were needed. To do that, allowance must be made not only for "additional pupils" but also for the pupils already enrolled whose school buildings become obsolete year by year.

[c] National Education Association and Department of Superintendence, Joint Commission on the Emergency in Education. *Major Trends in Public Education.* Washington, D. C.: the Association, 1934. p. 3-4.

in each two-year period. The period of most rapid growth was that from 1920 to 1924 inclusive. The increase reported for 1922 is particularly significant. During the decade 1924 to 1934 every year brought more than 200,000 additional pupils into the schools. Another fact that should be noted concerning enrolment trends during this period is that a large percentage of it must be attributed to the growth at the high-school level. For example, approximately four-fifths of the increase in school enrolment during the biennium 1926-28 was due to the growth of secondary schools. Since 1932, elementary-school enrolment has been decreasing but the gain in high-school enrolment carried the total forward to a net increase of nearly 300,000 students in 1932 and about 225,000 in 1934. Disproportionate growth in enrolment at the high-school level is significant because at that level more elaborate buildings and more expensive equipment are required for effective work. Column 4 in Table 17, derived from columns 2 and 3, shows the amount spent for school building purposes per pupil enrolled, ranging from $3.80 in 1934 to $16.61 in 1926. Column 6 shows the amount spent annually for each *additional pupil*, ranging from $368 to $1816.[1] These data indicate in a general way the relationship between school building costs and enrolment demands in the period since 1918. Again the years 1924 to 1930 stand out as those in which expenditures were the most liberal.

How liberal were these expenditures? Do they seem unreasonable in comparison with known building needs? To answer these questions one must determine in some objective manner the number of pupils for whom buildings should have been provided year by year and multiply that number by an average per pupil expenditure that seems reasonable. Altho no single figure thus derived will be accepted by everyone as a justifiable national expenditure for school buildings, an estimate will be introduced presently in this bulletin. It is based on certain objective information with respect to both the number of pupils for whom buildings have been needed since 1918 and the per pupil cost of a suitable but unpretentious school building of medium size, constructed economically. This estimate may be too low, for the attempt to make it conservative has been deliberate. It is almost certain that it is not too high to provide needed facilities measuring up to a standard of quality which most people would regard as reasonable. The method used in deriving it is explained in detail in the paragraphs immediately following.

In the first place, it is obvious that building facilities are needed for additional pupils from year to year as they come into the schools. In addition, buildings are needed to replace obsolete and outworn structures as they must be abandoned. Experience has shown that, on the average, 50 years is as long as school buildings can be expected to serve. Well-constructed buildings kept in good repair often last considerably longer, but in numerous instances the useful life of a building is less than 50 years. Hence, it seems reasonable to estimate that building facilities for about one-fiftieth of the school enrolment are needed each year to replace unsuitable structures. Combining the number of additional pupils per year with one-fiftieth of the enrolment, one obtains the results entered in column 2 of Table 18. This represents roughly the number of pupils for whom new buildings have been needed in alternate years from 1918 to 1934.

The actual expenditure for a typical school building of acceptable quality erected at low cost in a representative American community seems to be the best available criterion of "reasonable average per pupil cost" for the nation as a whole. Since there are differences of opinion, however, as to what constitutes a *typical* school building, an *acceptable quality* of construction, and a *representative* community, the project selected for use in this bulletin is described below in some detail. The facts are taken from the report of an important non-educational commission engaged recently in surveying the county and municipal finances of an eastern state.[2]

The building was designed for 342 pupils and built during the year 1929 at a cost of 32.1 cents per cubic foot or $425 per pupil, not including the cost of the building site and

[1] These figures do not show the average expenditure for each pupil for whom buildings were needed. To do that, allowance must be made not only for "additional pupils" but also for the pupils already enrolled whose school buildings become obsolete year by year. In this connection, see Table 18, (especially column 2), Figure IV, and the discussion of the data there presented.

[2] Commission To Investigate County and Municipal Taxation and Expenditures. Harley L. Lutz, director. *Report No. 8.* Trenton, N. J.: MacCrellish and Quigley, 1932. p. 99-100.

necessary equipment. If these are added, the per pupil expenditure was $453. The building is located in a town of 1350 inhabitants. It is a durable, fireproof structure but not unusual in design or built of the most costly materials. The following descriptive statements are given in the report:

> The building is of simple colonial architecture, with exterior walls of brick . . . The heating plant is separate . . . The room floors are maple over wooden joists. The corridor floors are concrete covered with linoleum. The lockers are built into the corridor walls and ventilated . . . A number of rooms are used for more than one purpose. The study hall is simply three classrooms in a row with partitions folded back. At one end of this suite is the kitchen for cafeteria service. A partition opening from the kitchen into the study hall is raised when lunch is served. Thus the study hall serves also as cafeteria . . . There is a gymnasium but no auditorium . . . This building shows commendable multiple use of spaces and economies which do not handicap the program planned and yet permit such savings as make possible having things for which otherwise there would not have been enough funds.

The building just described is probably as nearly typical as one could find. It is neither the large city school building nor the small one-room type. It represents no higher standard in building construction than most parents want for their children. It is located in a small town, or in other words in a semi-rural district.

If the survey commission is correct in its analysis, it would seem that an allowance of at least $400 should be made for every pupil for whom additional school buildings are needed in any given year in order to determine a reasonable outlay for this purpose. This amount seems conservative indeed in view of the following considerations:

1. Four hundred dollars per pupil is less than the cost of a building described by a responsible survey commission as "an economical building of moderate cost per pupil" and $53 less than the cost of this building equipped. Yet applied in the manner indicated above, $400 per pupil covers the entire cost of land, buildings, and equipment.

2. The building project by which the $400 allowance is suggested was carried out in a community of less than 1500 inhabitants, whereas 42 percent of the school enrolment in 1920, increasing to 50 percent in 1932, was in schools located in cities over 2500 in population.[a]

[a] Even in many rural districts, a desirable site and a well-planned one-room building of masonry construction, properly equipped, would require an outlay of $400 per pupil. And as for large cities, especially in the case of high-school buildings, it is seldom possible to erect satisfactory buildings at such low cost. Proper expenditures for city school buildings is suggested by the report of another non-educational survey committee, The Mayor's Advisory Committee on a Ten-Year Financial Plan for Syracuse, New York. This report, issued in 1930, recommended the following per pupil allowances:

For the construction of elementary-school buildings, $500 per pupil.

For the construction of junior high-school buildings, $750 per pupil.

For the construction of senior high-school buildings, $800 per pupil.

TABLE 18.—CAPITAL OUTLAY SINCE 1918 COMPARED WITH ESTIMATES OF *REASONABLE* EXPENDITURES FOR BUILDING PURPOSES

Year	Pupils to be provided for [a]	Reasonable expenditure, allowing $400 per pupil	Actual expenditure	Difference	Percent column 4 is of column 3
1	2	3	4	5	6
1918	667,985	$267,194,000	$119,082,943	$—148,111,057	44.6
1920	793,966	317,586,400	153,542,852	—164,043,548	48.3
1922	1,295,240	518,096,000	305,940,965	—212,155,035	59.1
1924	1,010,567	404,226,800	388,469,143	— 15,757,657	96.1
1926	721,159	288,463,600	411,037,774	+122,574,174	142.5
1928	722,707	289,082,800	382,996,156	+ 93,913,356	132.5
1930	762,720	305,088,000	370,877,969	+ 65,789,969	121.6
1932	824,221	329,688,400	210,996,262	—118,692,138	64.0
1934	757,720	303,088,000	101,468,000	—201,620,000	33.5
Total	7,556,285	$3,022,514,000	$2,444,412,064	$—578,101,936	80.9 [b]

[a] Derived from columns 3 and 5, Table 17. For example, for 1918 the number of additional pupils (250,915) plus one-fiftieth of the enrolment (417,070) equals 667,985.

[b] This percent is not the average of the figures in column 6 but is computed from the totals of columns 3 and 4.

3. Since there was little fluctuation in the index of construction costs between 1921 and 1930 (see Figure VIII, p. 29) the amount of money required for this illustrative building project should not be abnormally large, so far as the outlay was affected by prevailing prices.

4. Since between 1920 and 1930 the population of cities over 2500 increased more than fifteen million and the corresponding increase in rural areas was less than three million, the need for additional school buildings occasioned by growth in population has been greatest in urban districts where building costs are highest.

5. The percentage of buildings needed for high-school purposes since 1918 has been disproportionately large because it is at this level that the most rapid growth in enrolment has occurred.

Figure IV, based on columns 2 and 4 of Table 18, shows the actual capital outlay for each pupil for whom building facilities were needed in alternate years 1918 to 1934. The average expenditure for each of these pupils is also indicated in comparison with an allowance of $400 per pupil.

By multiplying the figures in column 2 of Table 18 by a per pupil allowance of $400, an estimate of reasonable expenditures for school buildings *in alternate years* since 1918 is obtained. These sums appear in column 3 of Table 18 alongside actual expenditures.

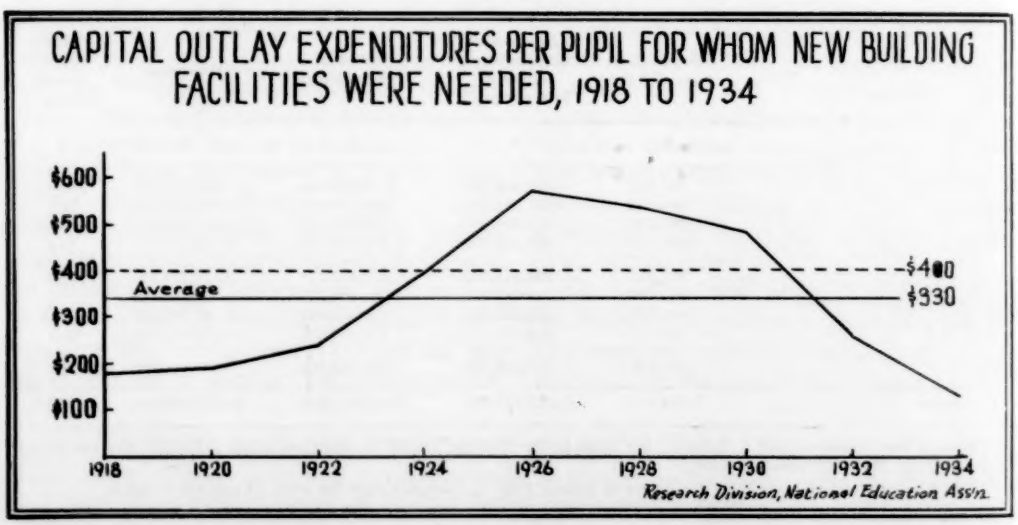
Except for the years 1926, 1928, and 1930, actual expenditures fell below the estimated reasonable expenditures. The difference was large prior to 1924, a fact generally known to school administrators in service during that period. Increased expenditures between 1926 and 1930 were unavoidable after urgent needs had been neglected for nearly a decade. Since 1932, school building construction has again fallen far behind, and in the near future an extensive building program undoubtedly will be necessary.

The amount actually spent for school buildings to provide necessary facilities in the nine years represented in Table 18 is about $578,000,000 less than the estimated expenditure justified by building needs. If this is true and allowance is made for the odd-numbered years, not included in the table, school building costs since the close of the World War have been more than a billion dollars below the expenditures justified.

If the criteria used in deriving this estimate are sound,[4] building construction generally

[4] Replacement of facilities for one-fiftieth of the annual enrolment and an expenditure of $400 per pupil are in no sense standards by which the expenditures of a particular community can be evaluated. Obviously, these factors will vary greatly from one community to another. In some districts replacement will be needed for a larger percentage of pupils and possibly a smaller per pupil expenditure will be required. In other districts allowance should be made for fewer pupils but a larger per pupil cost. Because of differences in the prices of materials and labor, construction costs vary greatly from one community to another, even in the case of buildings of the same size and type. Again, the number of pupils to be housed, the style of architecture, the type of construction, the value of the land on which a building is placed, and many other factors must be taken into account in determining for any given project the reasonable average per pupil cost. With proper refinements, however, the method used here might be applied on a local basis, comparing actual expenditures with the sums necessary to provide facilities of the quality which the community demands, for the children for whom additional buildings have been needed.

FIGURE IV



speaking has not gone beyond—nor indeed equalled—a reasonable and justifiable demand for housing facilities during the period since 1918. Certain school districts undoubtedly have built larger and more elaborate school buildings than were warranted, for the most part in response to the pressure brought to bear on boards of education by business and real estate interests concerned with community advertising. Because of such cases, however—often widely publicized—one should not infer that school building construction in general has been wasteful or unnecessary.

Building construction in principal cities since 1921—Further evidence of the fact that, by and large, school building construction has gone forward merely at a reasonable and normal rate is found in data from a representative group of large cities. The trend in the principal cities of the United States since 1921 is shown in Figure V. This diagram shows the average annual expenditure per city for *school and library* projects as reported annually by the Bureau of Labor Statistics of the U. S. Department of Labor.[5] No significant rise in the average expenditure per city occurred after 1922. With 1926—four years in advance of the first depression year—a downward trend began and since 1930 the drop has been precipitous.

In Table 19 expenditures for school and library buildings are compared with expenditures for all non-residential structures and with those for buildings of all types. Except for 1933, the ratio between outlays for school and library projects and the cost of all non-residential construction has remained fairly constant, ranging, for the most part, from about 10 to 14 percent. In periods of relatively mild economic depression the percentage seems to rise. Larger proportions of non-residential expenditures went to school and library projects from 1921 to 1923 and from 1930 to 1932 than in the years intervening. This is not surprising, for economic conditions have a direct influence on the number of stores, apartments, and other non-residential structures that can profitably be erected. On the other hand, the need for schools and libraries is relatively stable, regardless of economic conditions. The small percentage of non-residential expenditures used for schools and libraries in 1933 presents a

[5] U. S. Department of Labor, Bureau of Labor Statistics. *Building Permits in the Principal Cities of the United States.* Washington, D. C.: Government Printing Office. Annual summaries, 1921 to 1933.

FIGURE V

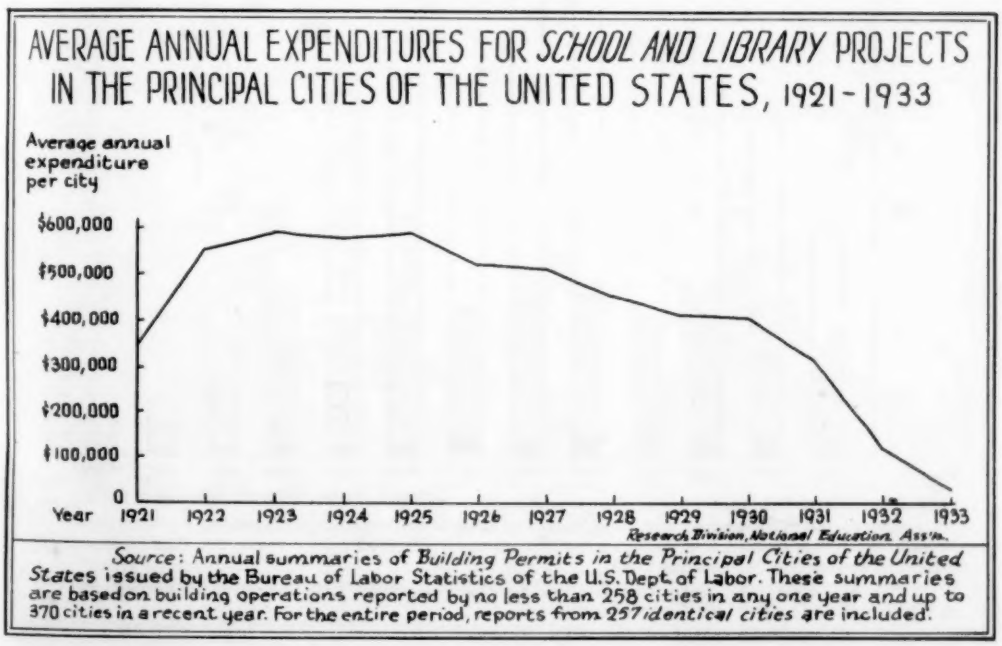
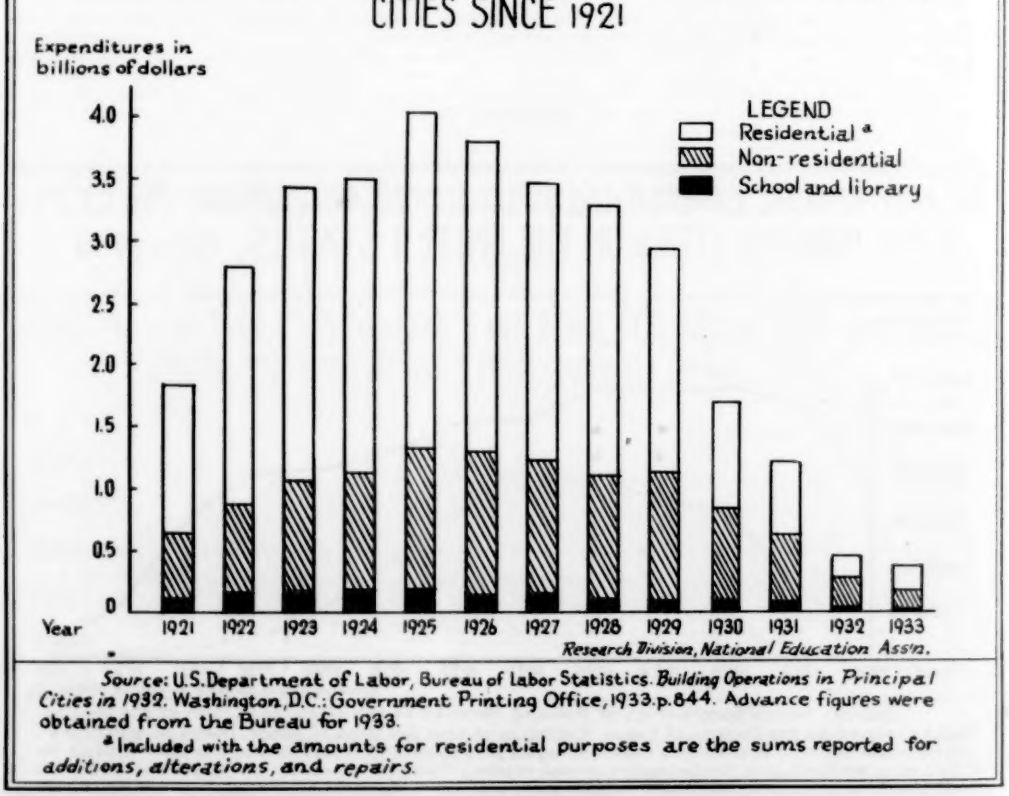

AVERAGE ANNUAL EXPENDITURES FOR SCHOOL AND LIBRARY PROJECTS IN THE PRINCIPAL CITIES OF THE UNITED STATES, 1921-1933
Average annual expenditure per city
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
0
Year
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
Research Division, National Education Ass'n.
Source: Annual summaries of Building Permits in the Principal Cities of the United States issued by the Bureau of Labor Statistics of the U.S. Dept. of Labor. These summaries are based on building operations reported by no less than 258 cities in any one year and up to 370 cities in a recent year. For the entire period, reports from 257 identical cities are included.

TABLE 19.—EXPENDITURES FOR BUILDINGS OF DIFFERENT TYPES IN 257 IDENTICAL CITIES, 1921-1933

Year	Expenditures for:			Percent that school and library costs are of all non-residential expenditures
	Buildings of all types	Non-residential buildings	Schools and libraries	
1	2	3	4	5
1921	$1,855,779,729	$ 635,775,199	$ 90,280,078	14.2
1922	2,785,940,410	876,276,713	145,461,934	16.6
1923	3,431,262,598	1,070,596,718	154,165,927	14.4
1924	3,508,266,587	1,137,631,080	158,130,720	13.9
1925	4,038,062,339	1,343,880,884	162,609,587	12.1
1926	3,826,927,204	1,300,840,876	149,596,701	11.5
1927	3,478,605,062	1,231,785,870	150,277,876	12.2
1928	3,304,699,712	1,135,549,986	137,401,548	12.1
1929	2,933,117,531	1,146,958,101	123,871,475	10.8
1930	1,699,675,514	849,386,873	122,311,710	14.4
1931	1,237,985,293	622,830,444	106,504,006	17.1
1932	481,490,267	275,788,958	40,816,766	14.8
1933	382,389,451	183,065,712	10,068,614	5.5

Source: U. S. Department of Labor, Bureau of Labor Statistics. *Building Permits in the Principal Cities of the United States.* Washington, D. C.: Government Printing Office. Annual summaries, 1921 to 1933.

FIGURE VI



Source: U.S. Department of Labor, Bureau of Labor Statistics. *Building Operations in Principal Cities in 1932.* Washington, D.C.: Government Printing Office, 1933. p. 844. Advance figures were obtained from the Bureau for 1933.

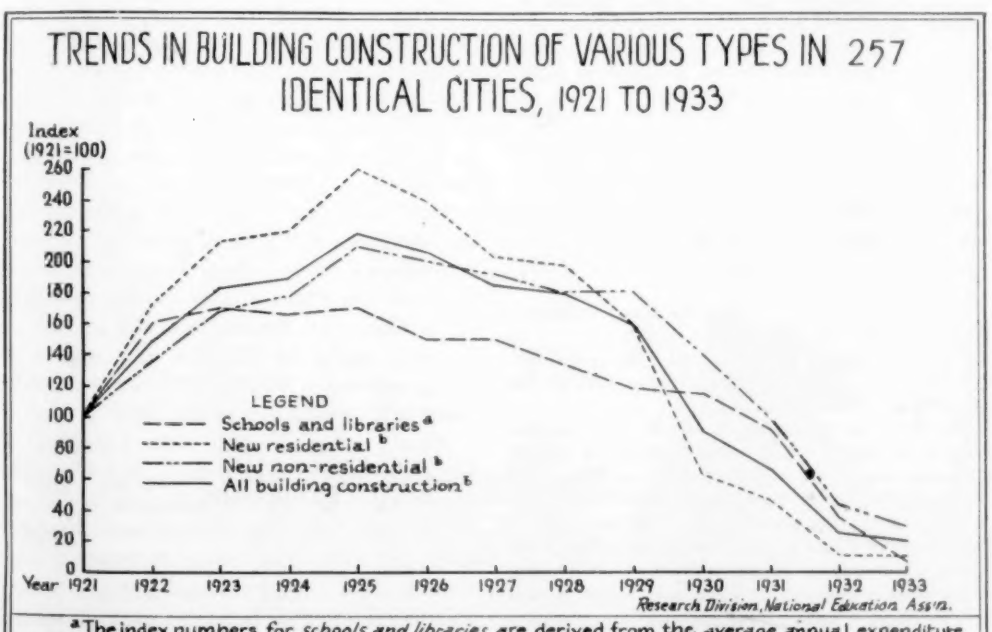
[a] Included with the amounts for residential purposes are the sums reported for *additions, alterations, and repairs.*

sharp contrast to the percentages used for this purpose in other depression years. Furthermore, the actual amount spent is less than one-fourth of the 1932 expenditure and less than one-sixteenth of that of the peak year, 1925.

The relationships existing among these expenditures are presented graphically in Figures VI and VII. These diagrams, based on information from 257 of the principal cities of the United States, undoubtedly represent in an accurate manner the trends prevailing generally with respect to building construction in urban communities from 1921 to 1933. Figure VI shows clearly that the cost of school buildings is but a small part of what society spends for housing of all types, and that expenditures for school buildings rise and fall with those for construction of other types. In Figure VII, taking 1921 as a base year, trends are charted for *all building construction, new residential, new non-residential,* and *school and library* projects. There is no evidence here of excessive school building activity. School building construction did not outstrip building construction of other types during the pre-depression period 1921 to 1929. Between 1921 and 1923 school and library construction forged slightly ahead of all non-residential construction, and since 1930 it has run ahead of residential construction. But from 1924 thru 1929, during the height of prosperity, school building construction lagged behind other types. Never since 1923 has the index for school and library projects equalled that for non-residential construction in general.

Since the data just presented have not been related directly to school enrolments, broad generalizations with respect to the adequacy of school building programs cannot be drawn from them. In view of the fact, however, that school building construction lagged behind construction of other types during a period of rapid school growth (one in which school enrolments increased approximately 20 percent as compared with an increase of only 16 percent in the general population), these data indicate conservatism rather than unjustified expansion. They are in complete agreement with the facts presented earlier concerning building costs and school enrolments for the entire nation.

FIGURE VII



[a] The index numbers for *schools and libraries* are derived from the average annual expenditure for this purpose in cities reporting to the Bureau of Labor Statistics of the U.S. Department of Labor.

[b] Index numbers for *new residential, new non-residential,* and *all building construction* are published by the Bureau of Labor Statistics for 257 identical cities. See *Building Operations in Principal Cities in 1932,* Table 5, p. 844, for all index numbers except those for 1933, which were obtained direct from the Bureau.

IV. The Federal Government and the School Building Problem

The public works program of the federal government, now under way, has been created to provide employment for as many as possible of the men unable to find work in private industry during the present emergency. Recognizing the fact that school buildings are worthy public works projects, the Public Works Administration during the school year 1933-34 allotted approximately $70,000,000 in loans and grants for school building projects of various types.[1] This sum was distributed in each case in the form of an outright grant of not more than 30 percent of the cost of the material and labor used plus a loan covering part or all of the remaining 70 percent. Federal money thus employed has brought lasting benefits to education, and the continuance of school building construction on an adequate scale in connection with the public works program of the future is highly desirable. The value of the work already accomplished in this field has been pointed out by Administrator Harold L. Ickes:

> In aiding schools PWA again finds a chance to help raise the nation's standard of living. School building is something worthwhile that benefits the coming generation rather than repairing or concealing the mistakes of the present or past generation. I would be better pleased if still more money could go for educational purposes.[2]

According to recent newspaper reports an extensive public works program is likely to be carried out during 1935-36. The following excerpt from an Associated Press dispatch of October 26, 1934, indicated that possibility:

> The PWA quietly is paving the way for another huge appropriation for projects designed to create jobs in every corner of the nation. The administration is certain, well-informed persons said, to ask for millions, perhaps billions.
>
> The PWA is preparing to lay before Congress a list of operations which might be launched quickly if its coffers . . . are replenished. A number of government agencies, accordingly, have been asked to speed up public works projects for which they have received funds already and to determine what future developments might stimulate employment. PWA state engineers . . . have been asked to turn in lists of new non-federal projects which would qualify for public works loans and grants. . . . The Bureau of Public Roads of the Department of Agriculture . . . is reported to have sent a letter to state road and highway commissions asking what bridge and road projects could be started within 30, 60, or 90 days. From its original appropriation the PWA gave the bureau $400,000,000 for road work.[3]

Then on January 7, 1935, in his budget message to Congress, President Roosevelt recommended "that $4,000,000 be appropriated by the Congress in one sum, subject to allocation by the Executive principally for giving work to those unemployed on the relief rolls." An estimate of expenditures covering this amount was included in the budget submitted to Congress.

In view of the needs described in earlier sections of this manuscript, it seems apparent that further federal expenditures for school buildings are fully justified. Estimating from the facts reported by certain states and cities, additional housing facilities are needed for more than two and a half million children now attending school only part time or housed in antiquated or outworn structures, and for a much larger number of children now attending small schools that ought to be consolidated. A reliable estimate of the amount of money that would be required to provide reasonably satisfactory schoolhousing facilities for all the nation's children is impossible from the data available. But, if the consolidation problem is omitted from consideration, and a per pupil expenditure of $400 is allowed for 2,500,000 pupils, an outlay of a billion dollars is suggested. Neither this year, nor in the years immediately ahead, can local communities shoulder the whole of this burden. Indeed it seems likely that the problem will grow, as it has been doing for the past four years especially, unless the federal government increases materially its activities in this field.

Local resources have been virtually exhausted—Many districts have almost or completely exhausted all their resources in the matter of school building construction. In many cases limitations with respect to wealth and income make it hard for school districts to provide suitable school buildings even in normal

[1] Federal Emergency Administration of Public Works, Division of Economics and Statistics. Table A-5, March 27, 1934. (Not available for general distribution.)

[2] Federal Emergency Administration of Public Works, PWA Press Section. Release No. 498, February 11, 1934. p. 1.

[3] *The Evening Star*, Washington, D. C. October 26, 1934. p. 1, 3.

periods. When the assessed valuation back of each child is multiplied by the maximum legal bonding rate in the various states, there are two states in which less than $100 per pupil in average daily attendance could be obtained, even if no bonded debt existed.[4] In four other states the amount would be less than $150, and in six other states less than $200. When existing bonded debt is taken into account, the free bonding capacity is much lower. In four states it is less than $50 per pupil, in five other states less than $100 per pupil, and in seven others less than $150 per pupil. In half of the states it does not exceed $250 per pupil.

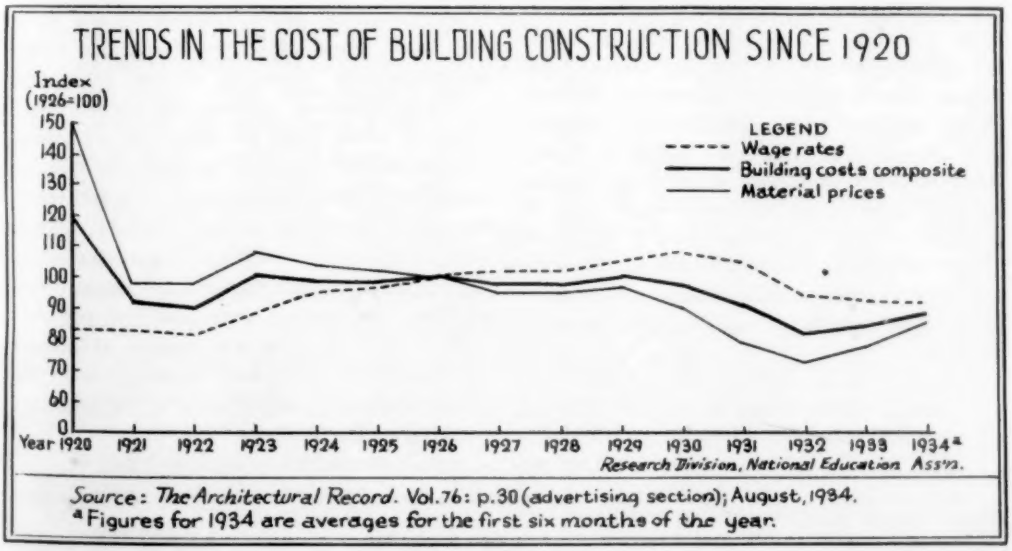
The consolidation of rural schools—There are unusually good reasons why the federal government should assist in the construction of new consolidated rural schools. Since the old, one-room school buildings have become obsolete largely because of social and economic changes far beyond the control of the rural population, the largest possible social unit—in this case the federal government—should assume the cost of replacing these obsolete buildings with modern consolidated structures. This movement, favored alike by students of government and those of school administration, is one of the most worthy projects in which the national government could participate.

Low construction costs—The school buildings so urgently needed can be erected at the present time at a cost far below that normally required. Building costs are lower than at any time during the decade 1920 to 1930, and are undoubtedly much lower than they will be when national recovery is accomplished. Figure VIII, which shows the trend of school building costs since 1920, is a convincing argument in favor of building *now*. Facilities needed at the present time will cost considerably more if the public fails to take advantage of present low prices.

Federal expenditures needed immediately—On April 12, 1934, an inquiry was sent to state departments of education asking them to estimate the amount of federal aid required to purchase sites and construct needed school buildings in their respective states. The inquiry specified that estimates should be based *on projects and that part of the cost of projects that cannot be financed at present from state and local resources*. In order further to assure that the estimates would be comparable, the state departments were asked to report in two ways: (1) the amount needed assuming the continuance of the 70-30 "loan and grant" arrangement; and (2) the amount needed if grants were provided up to 100 percent of the cost of each project. Table 20 summarizes the estimates from 20 states.

[4] Viles, N. E. "Federal Aid for a School Rehousing Program." *American School Board Journal* 88: 29-30; March 1934.

FIGURE VIII



Source: *The Architectural Record*. Vol. 76: p. 30 (advertising section); August, 1934.
[a] Figures for 1934 are averages for the first six months of the year.

TABLE 20.—ESTIMATES OF THE AMOUNT OF FEDERAL AID REQUIRED TO FINANCE LEGITIMATE SCHOOL BUILDING PROJECTS IN 20 STATES

State	Basis of distribution	
	Loan and grant	Up to 100 percent grant
Alabama	$7,500,000	$17,000,000[a]
Arkansas	400,000	4,000,000
California	15,000,000	10,000,000
Idaho	50,000	3,000,000
Iowa	1,100,000[b]	500,000[c]
Kentucky	3,750,000	16,676,000
Maine	200,000	700,000
Michigan	None	50,000,000
Mississippi	200,000	2,000,000
Missouri	13,000,000	7,000,000
New York	40,000,000	No estimate
North Carolina	2,000,000	6,000,000
Oklahoma	100,000	3,000,000
Oregon	500,000	1,000,000
Pennsylvania	4,800,000	16,000,000
South Carolina	400,000	8,000,000[d]
Tennessee	No estimate	7,000,000[e]
Texas	10,000,000	23,000,000[f]
Virginia	5,000,000[g]	No estimate
Washington	2,000,000	3,000,000
West Virginia	None	8,150,000
Total	$106,000,000	$186,026,000

Source: Letters and telegrams from state departments of education, April 1934. The footnotes which follow give explanations that accompanied the estimates.

[a] Two-thirds of this amount should be used for rural projects. An application from the city of Birmingham alone for $5,000,000 is pending before the Public Works Administration. Hence $17,000,000 is a conservative estimate.

[b] The average expenditure for school buildings in Iowa for the five-year period ending June 1933 was $1,690,000. Thirty percent of this amount plus half of the remainder (needed as a loan) is $1,103,500.

[c] One-third of the amount spent annually in Iowa for school building construction.

[d] Total need: $18,000,000.

[e] Total need: $50,000,000. The $7,000,000 mentioned here is needed for the immediate construction of buildings for consolidation purposes.

[f] This estimate includes $3,000,000 for applications pending before the Public Works Administration. If any of these are granted this amount should be reduced accordingly.

[g] Total building need: $15,000,000.

In a majority of the states, it would seem that the plan of making an outright grant up to 100 percent of the cost of each project would be more helpful than a "loan and grant" arrangement. In these states, school building needs are greatest in districts that are virtually insolvent—too hard pressed financially to obtain help by means of a federal loan. In a few states, however, such as California and New York, large numbers of school districts could care for their own school building needs if loans at reasonable rates of interest could be obtained. Were information available for states other than those named in Table 20, situations similar to those reported would be found in many of them.

School building construction and the relief of unemployment—Since about one-third of the cost of non-residential buildings is chargeable to labor, the construction of a school building is a project that provides a large amount of employment.[5] It is also one that requires labor of various classes. Excavating and grading, brick work, carpentry work, tile work, concrete work, electrical wiring, plumbing, painting, plastering, roofing, and various other types of work must be done. Hence school building construction is a desirable type of project for unemployment relief. In constructing school buildings during 1933-34, federal authorities charged with the administration of the program estimate that 293,500 man months of direct employment were provided, and that at least twice as many man months of indirect and industrial employment were created by the production and transportation of the necessary materials and equipment.[6]

[5] U. S. Department of Labor, Bureau of Labor Statistics. "Relative Cost of Material and Labor in Building Construction, 1931-32." *Monthly Labor Review* 35: 763; October 1932.

[6] Federal Emergency Administration of Public Works, PWA Press Section. Release No. 498, February 11, 1934. p. 2.

Constructing school buildings as public works projects would carry unemployment relief into rural and village communities where suitable projects of other types are seldom found. If public works enterprises are confined to projects such as power plants, sewers, streets, bridges, reservoirs, hospitals, airports, and public buildings, relatively few rural and village communities derive benefit from the program. Few enterprises are better adapted to distribute employment in all parts of the country than the construction of needed school buildings.

Availability of school building projects—An important element in the whole public works program is the matter of getting employment started immediately. The beginning that has been made already would make it possible to proceed with many school building projects with a minimum of delay. In answer to the call of the federal government, many communities have developed plans for school building projects, have voted bonds for the proportion of the funds that they were required to raise locally under existing regulations, have placed their applications with the Public Works Administration, but have not yet received any money from the federal government. In many cases action of this type has been regarded as a patriotic duty. Communities have taken these steps, desiring to do their part in cooperating with the federal government in the recovery program. They have gone to considerable expense in order thus to fall in line with the administration's program. Specifications are drawn and all preliminary arrangements have been made in the case of about $1,000,000 worth of the buildings needed in the state of Arkansas. Construction on these projects could begin immediately. The same is true of $3,500,000 worth of projects in Kentucky, for the entire building program outlined for Tennessee, and for 1514 school buildings badly needed in the state of Mississippi. A large amount of construction could be started immediately on school building projects for which applications are now pending.

IT IS my thought that with the exception of certain of the normal public building operations of the Government, all emergency public works shall be united in a single new and greatly enlarged plan. With the establishment of this new system we can supersede the Federal Emergency Relief Administration with a coordinated authority which will be charged with the orderly liquidation of our present relief activities and the substitution of a national chart for the giving of work. This work will cover a wide field including clearance of slums, which for adequate reasons cannot be undertaken by private capital; in rural housing of several kinds, where, again, private capital is unable to function; in rural electrification; in the reforestation of the great watersheds of the Nation; in an intensified program to prevent soil erosion and to reclaim blighted areas; in improving existing road systems and in constructing national highways designed to handle modern traffic; in the elimination of grade crossings; in the extension and enlargement of the successful work of the Civilian Conservation Corps; in non-Federal work, mostly self-liquidating and highly useful to local divisions of Government, and on many others which the Nation needs and cannot afford to neglect. This is the method which I propose to you in order that we may better meet this present-day problem of unemployment. Its greatest advantage is that it fits logically and usefully into the long-range, permanent policy of providing the three types of security which constitute as a whole an American plan for the American people.—Franklin D. Roosevelt. President's Message to the Seventy-fourth Congress.

Summary

During the past four years school building construction, which had been decreasing since 1926, has been halted abruptly. At present such operations are moving at about 25 percent of their normal rate. This sharp decline in building construction at a time when school enrolments are on the increase, together with a considerable volume of building needs accumulated prior to 1930, is creating serious housing problems.

Altho definite information is available with respect to less than half the states and only about ninety cities over 30,000 in population in other states, it is definitely reported that (1) 687,611 pupils are housed in school buildings which have been condemned as unsafe or unsanitary; (2) 618,068 are housed in portable, rented, or other temporary structures; (3) 391,748 can attend school only part time because of inadequate housing facilities; and (4) 2,301,220 are attending small schools which, in the judgment of chief state school officers, ought to be abandoned in favor of larger consolidated schools. Estimating from these figures, additional building facilities for 2,700,000 pupils are required merely to replace condemned and temporary structures and to provide full-time accommodations for all pupils. Likewise, about 16,000 consolidated schools ought to be established in the interest of some 5,000,000 rural children now attending poorly equipped, inefficient schools.

Less than 5 percent of the nation's school buildings have been constructed since 1930. A third of them were constructed between 1870 and 1900 and about 7.6 percent of them date back to the Civil War period.

Reports from individual states indicate that many other building needs exist. Buildings are carrying enrolments far in excess of their intended capacities. Additions, alterations, repairs, and adequate sanitary facilities should receive immediate attention.

Contrary to an opinion widely held, the period 1918 to 1930 was not one marked by wasteful and unnecessary school building construction. Individual cases of mismanagement can be cited in this period or any other, but in the nation as a whole school building construction lagged behind actual needs. The amount actually spent for school buildings since 1918 is approximately a billion dollars less than it would have been allowing an expenditure of $400 for each pupil added to the school system and for one-fiftieth of each year's enrolment.[1] In the principal cities of the United States school building construction lagged behind that of other types from 1923 to 1930, the period of most liberal school expenditures. The average annual expenditure per city began to decline in 1926, long before the depression was felt.

During the present crisis, thousands of school districts which lack sufficient resources for current operating expenses can do little to provide needed housing facilities. Other communities, however, in which buildings can be erected without despoiling the budget for instructional purposes, should no longer neglect their building programs. In addition, during the immediate future, while it is necessary for the federal government to give employment to men unable to find a place in industry, no better public works project is available than the construction of needed school buildings. Generous provisions for such projects should be made in whatever public works program the federal government pursues.

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[1] Evidence that this allowance is a reasonable one is given on p. 22-24.

Inquiry Forms Used in This Study

NATIONAL EDUCATION ASSOCIATION
Washington, D. C.

Research Division — April 18, 1934

AN INQUIRY RELATING TO SCHOOL BUILDING NEEDS

The information requested below will be used to study the school building situation as related to the federal public works program. In answering the questions, please observe the following directions: (1) Confine your report to public elementary and secondary schools. (2) Give estimates, where exact data are not available, marking your estimates with the symbol "Est." (3) If possible, give data for the whole state; otherwise, enclose a list of the cities, counties or other areas excluded.

1. How many children are attending school on a part-time basis because of inadequate building facilities? _____.

2. How many children are attending school in portable, rented, or other temporary structures? _____.

3. Please give the data requested in the following table:

Year	Expenditures		Enrolments	
	Capital Outlay	Total a/	Elementary	Secondary
1931-32	$	$		
1932-33				
1933-34	(Est.)	(Est.)	(Est.)	(Est.)
1934-35	(Est.)	(Est.)	(Est.)	(Est.)

a/ Include under "Expenditures, Total": Current expenses, capital outlay, and interest.

4. How many buildings that have been condemned as unsafe or unsanitary are still in use? _____. How many children do they house? _____.

5. In how many cases might consolidation be brought about if federal aid were available for the necessary buildings? _____. About how many children would be involved? _____. The number of schools in the areas thus consolidated would be reduced from _____ to _____.

6. Please indicate below the age of school buildings now in use in your state:

Date of Construction	Number of school buildings		
	One-room	All others	Total a/
Since 1930			
1900-1929			
1870-1899			
Before 1870			
Total			

a/ Please give information covering the "total number of school buildings" even the it is not possible to separate "one-room" buildings from "all others."

7. Please enclose with your reply copies of building surveys, official reports, tabulations of pertinent data, or other materials pertaining to the school building situation in your state. On separate sheets of paper, report facts and pertinent illustrations not covered by the foregoing questions; for example, instances where buildings are badly overcrowded.

Keep one copy of this form for your files, and return one copy to:
Research Division, National Education Association, 1201 Sixteenth Street, Washington, D. C.

NATIONAL EDUCATION ASSOCIATION
Washington, D. C.

Research Division — May 18, 1934

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Year	Expenditures		Enrolments	
	Capital Outlay	Total a/	Elementary	Secondary
1931-32	$	$		
1932-33				
1933-34	(Est.)	(Est.)	(Est.)	(Est.)
1934-35	(Est.)	(Est.)	(Est.)	(Est.)

a/ Include under "Expenditures, Total": Current expenses, capital outlay, and interest.

4. How many buildings that have been condemned as unsafe or unsanitary are still in use? _____ How many children do they house? _____

5. Please indicate below the age of school buildings now in use in your city:

Date of Construction	Number of school buildings
Since 1930	
1900 - 1929	
1870 - 1899	
Before 1870	
Total	

6. Please enclose with your reply copies of building surveys, official reports, tabulations of pertinent data, or other materials pertaining to the school building situation in your city.

Keep one copy of this form for your files, and return one copy to:
Research Division, National Education Association, 1201 Sixteenth Street, Washington, D. C.

APPENDIX

Apparent Reliability of the Sampling in the Case of Reports from City School Systems

ONE method of determining the reliability of a sample used in statistical computations is to divide the sample into equal parts and note how the parts compare with each other. If the results obtained using one part of the sample are similar to those obtained by using the other part, it is probable that the sample is large enough to be reliable—that the results would be approximately the same if complete data could be obtained.

This method of equal parts tabulation was applied to test the reliability of the sample represented by the replies from 49 cities over 100,000 in population and 114 cities 30,000 to 100,000 in population. The reports from cities in each population group were arranged alphabetically, first by states, then by cities within the states. They were divided into equal parts by using alternate reports from these lists. The table presented below summarizes the tabulation of the paired reports. The percentages relating to improper housing conditions are remarkably close for the comparable groups of cities. Compare columns 3 and 5; also columns 7 and 9.

SUMMARY OF REPLIES FROM CITY SCHOOL SYSTEMS WHEN THE RETURNS FROM EACH POPULATION GROUP ARE TABULATED IN TWO PARTS, USING ALTERNATE REPORTS FROM AN ALPHABETIZED LIST

Situation reported	25 cities over 100,000		24 cities over 100,000		57 cities 30 000 to 100,000		57 cities 30,000 to 100,000	
	Number[a]	Per-cent[b]	Number[a]	Per-cent[b]	Number[a]	Per-cent[b]	Number[a]	Per-cent[b]
1	2	3	4	5	6	7	8	9
Condemned buildings in use	13	0.7	7	0.3	42	3.9	35	3.1
Pupils housed in condemned buildings	6,897	0.5	4,055	0.2	20,946	3.8	15,878	2.8
Pupils attending part time	66,445	5.1	76,481	4.3	14,007	2.5	12,317	2.2
Pupils housed in temporary structures	51,078	3.9	71,723	4.0	13,860	2.5	15,081	2.7
Buildings constructed before 1870	62	3.5	87	3.2	33	3.0	35	3.1
Buildings constructed 1870-1899	436	24.8	751	27.5	308	28.3	317	28.3
Buildings constructed 1900-1929	1,125	64.1	1,686	61.7	615	56.4	691	61.7
Buildings constructed since 1930	83	4.7	207	7.6	61	5.6	55	4.9

[a] Total number reported in these cities.

[b] Percent that the number of buildings or pupils reported is of the total number of buildings or pupils in these cities in the year 1932.

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OVERNMENTAL borrowing during a period of depression to damp the fluctuations of governmental expenditures is a legitimate and proper process of public financing. It is undesirable that the expenditures of governmental units should fluctuate through the same range as the cyclical fluctuations of business conditions. It is undesirable, first because such fluctuation disturbs the very essential continuity of governmental and educational programs. It is undesirable, in the second place, because a decrease in governmental expenditures proportionate to the decrease in private expenditures during a depression has a cumulative effect in increasing unemployment. The dollars spent by the government are just as effectual in building up purchasing power and creating jobs as the dollars spent by private individuals. It is of course a corollary of this principle that governmental and educational expenditures should not be permitted to expand during prosperous times as rapidly as would be justifiable had no borrowing been undertaken during depression. On the contrary, the rapid repayment of these governmental debts should be a first charge on the increased tax proceeds accruing from the up-swing in business.—Report of the National Conference on the Financing of Education, p. 54.